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Echeazu Jude Igbokwe

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The impact of required competencies and some selected variables on the quality of training among trainers in business and industry: A factor analytic approach

Igbokwe, Echeazu Jude, Ph.D.

Iowa State University, 1989
The impact of required competencies and some selected variables on the quality of training among trainers in business and industry: A factor analytic approach

by

Echeazu Jude Igbokwe

A Dissertation Submitted to the Graduate Faculty in Partial Fulfillment of the Requirements for the Degree of DOCTOR OF PHILOSOPHY

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For the Graduate College

Iowa State University
Ames, Iowa

1989
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DEDICATION

This dissertation is dedicated to the memory of

my late father

Chief Boniface Nwalozie Nwanjoku Igbokwe

and

my late sister

Mrs Anthonia U. Kekeh

whose memories guided me through this study.
CHAPTER 1. INTRODUCTION

Background of the Study

Research in business and industry shows that the United States alone spends over $30 - $40 billion dollars annually on formal courses of instruction and training. It is also reported that over 40 million employees are trained yearly in the United States. (Calvert, 1985; ASTD, 1983). This represents a huge economic investment. Ironically, little evidence exists with regard to the payoff of such investment. It is assumed that training increases effectiveness, productivity, and, ultimately, total organizational payoff.

When one examines the role of training in business and industry, one finds that training is used to keep employees current on relevant job skills as much as a reward to productive employees. Training, according to May, Moore, and Zammit (1987), is very often used by business and industry for strategic purposes such as implementing strategic changes like becoming more entrepreneurial, improving customer service, developing a customer market focus, and developing the manager's
administrative potentials. In the words of Gherson and Moore, "training addresses organizational roadblocks and ultimately helps managers and employees understand their roles in implementing competitive strategy" (May, Moore, and Zammit, 1987, p. 88).

The importance of training for organizational growth and sustenance cannot be overemphasized. With the increase in such forces as deregulation, advances in information technology, increased international competition, and shifts in consumer tastes and preferences, it is no wonder that training has become such an important part of an organization. The use of training by business and industry to counteract these forces of change is one of many different levers available to management for effecting organizational change in support of strategic initiatives. Strategic levers, according to May, Moore, and Zammit (1987), are means for implementing strategic change once new directions have been set in the executive boardroom. The following quote in May, Moore, and Zammit (1987) reflects such a trend.

"Some strategic levers provide means for 'making' a new business organization from within. These include redesign of
organizational structure, redefinition of roles, and changes in reward structures, as well as training to effect changes in behaviors, attitudes, skills and knowledge. Other levers provide means for 'buying' change. These include acquisition and merger to bring new business into the corporation, hiring of new executive talent to bring desired leadership skills and business orientation into the firm, and hiring of people with particular technical expertise such as state-of-the-art knowledge and skills". (p. 99)

Training in business and industry is for everyone who has a stake in contributing to the organization's objectives. These include managers, supervisors, line and staff workers, clerical staff, front-line staff, and technical staff, among others. Managers and supervisors need training to improve and enhance their human relations and supervisory skills. Line and staff workers need training to enhance and upgrade their skills based on the new technology. Clerical staff need training to keep abreast of new technology and new ways of doing things in the workplace. Front-line staff need training in the ways of dealing with potential customers and clients so as to have repeat business. Finally, technical staff need training to keep up to date with current production technology. Moreover, all these business and industry employees need training to better
relate to and get along with each other in their pursuit of a common strategic business objective.

A concern of most business and industry analysts is that most business and industry trainers do not have formal training to be trainers. The backgrounds of these trainers range from academic preparation to on-the-job (OJT) experiences. Those with academic backgrounds differed in their academic disciplines, with some in business, others in education, liberal arts, psychology, sociology, philosophy, engineering, and other related disciplines. The result of these diverse backgrounds had stimulated concern regarding the possession and application of competencies deemed to be related to effective and quality training. These and other problems with training led the American Society for Training and Development (ASTD) to develop a competency list for trainers in order for them to be effective in the training they do.

This study therefore examined the need for trainers to have the ASTD's required competencies and how trainers in business and industry rate the importance and frequency of application of these competencies in the training they do. Finally, the study examined the
question of effective and quality training in relationship to application of the competencies in business and industry training.

Statement of Problem.

Since the ASTD competency study was made public in 1983, most business organizations and authors have been identifying the possession of required trainer competencies as a sine-qua-non for effective and quality training in business and industry.

In business and industry, however, the bottom line of all major investments, be it capital, human, or otherwise, is increased payoff. No business or industry can continually invest huge sums of money without adequate payoff from the investment.

It has been documented that business and industry in the United States spends over $30-$40 billion dollars annually on formal courses of instruction and training, and train over 40 million employees yearly (Thomas, 1981; ASTD, 1983; Calvert, 1985). These investments ought to lead to an adequate payoff for the business or industry.
In view of all these business and industry objectives, vis-a-vis the possession of the ASTD-required competencies by trainers, we do not know for sure whether having these competencies, or the application of these competencies, actually does impact on the quality of training, and whether therefore they impact on productivity. It is also unclear whether these competencies are just ideals (to strive for) that can never be reached, or are simply guidelines for the trainer to aspire towards.

It is therefore important to ascertain whether trainers in business and industry do indeed possess and incorporate the ASTD-required competencies in the training they do, and, if they do, whether their training is seen as quality training.

Questions of the Study

1. Do trainers actually have these ASTD-required competencies, and do they apply them in the training they do?

2. Are these competencies perceived as essential to training?
3. Are different competencies applied in different types of training, and what is the deciding factor?

4. Are some of the competencies seen as more valuable/important than others? If so, which ones, and why?

5. Does the application of the competencies by trainers impact the quality and effectiveness of a training program?

6. Do differences exist between the perception of trainers and supervisor/managers on the criteria for measuring effectiveness and purpose of training in business and industry?

**Definition of Terms**

**Quality of Training:**
This concept reflects the degree to which trainers and training are seen to help achieve organizational objectives in business and industry.
Competencies:

This concept refers to the skills, knowledge, and attitude sufficient for one to operate in a defined area of expertise. Four role clusters that identify the ASTD required competencies are interface, concept development, research, and leadership clusters (ASTD 1983, pp. 17-18).

1. **Interface Cluster:** This concept is used to denote the following competencies: adult learning understanding, feedback skills, group process skills, intellectual versatility, organization behavior understanding, questioning skills, relationship versatility, and training and development technique understanding. These competencies involve the trainer in different roles, such as marketer, transfer agent, group facilitator, and instructor.

2. **Concept Development Cluster:** This concept is used to denote the following competencies: adult learning understanding, competency identification skills, computer competence, data reduction skills, intellectual versatility, model building, objectives preparation,
training and development techniques understanding, and writing skills. These competencies involves the trainer in different roles, such as program designer, instructional writer, and theoretician.

3. **Research Cluster:** This concept is used to denote the following competencies: competency identification skills, computer competence, data reduction skills, feedback skills, intellectual versatility, performance observation skills, questioning skills, research skills, and writing skills. These competencies involves the trainer in different roles, such as evaluator, task analyst, and needs analyst.

4. **Leadership Cluster:** This concept is used to denote the following competencies: cost/benefit analysis skills, data reduction skills, futuring skills, industry understanding, organization behavior understanding, organization understanding, personnel/human resource field understanding, writing skills, and intellectual versatility. These competencies involve the trainer in different roles, such as strategist and manager.
Study Assumptions

1. Quality and effective training ought to lead to increased productivity/organizational payoff.

2. The objectives of training in business and industry will be integrally related to organizational goals and objectives.

3. In order to make generalizable conclusions from the sample selected, it is assumed that an acceptable sampling of trainers in business and industry can be obtained through the membership of ASTD.

4. Respondents will be forthright and honest in their assessments and responses about training competencies.

Hypotheses to be tested

1. There is a significantly (p < .05) positive relationship between the application of competencies by trainers and the reported quality of the training they do.
The assumption underlying this hypothesis is that trainers who possess and apply more of the ASTD-required competencies do quality training by their application of the competencies they possess while training. Therefore, the competencies are essential for trainers, and the more the competencies, the better the quality of training done.

2. There is a significantly (p < .05) positive relationship between the educational level and the application of competencies by trainers in business and industry.

The assumption underlying this hypothesis is that educational level leads to increased competency of trainers and trainers who possess and apply the competencies will attach more importance to their educational background and be apt to see the value of the competencies to quality training.

3. There is a significant difference (p < .05) in competencies applied during different types of training.
The assumption underlying this hypothesis is that the competencies applied are dependent on the type of training. The type of training, such as managerial, line/staff, clerical, and others, will require different competencies in assuring that those involved in the learning process do indeed learn during the training, thereby upholding some adult learning theories. (For example, different teaching and learning styles help adults learn).

4. There is a significant difference (p < .05) in the importance of competencies among trainers with different educational backgrounds.

The assumption underlying this hypothesis is that business and industry should seek out trainers with educational backgrounds that tend to emphasize the importance of these competencies. These trainers are more likely to possess and value these competencies in trying to meet their organizational objectives.
5. Trainers who see the purpose of training as related to organizational goals will possess significantly greater (p < .05) levels of competencies than those who do not see training and organizational goals as necessarily related.

The assumption underlying this hypothesis is that a trainer's attitude towards training has something to do with how prepared the trainer is with regard to the competency level. Those who view training as a means to achieve organizational payoff are more likely to be those who have the required competencies.

6. There is no significant difference (p < .05) between trainers and managers/supervisors on the criteria for training effectiveness.

The assumption underlying this hypothesis is that when supervisors and trainers have the same criteria for measuring training effectiveness, then there is a common ground for evaluating success or failure.
Hence, industry objectives can be evaluated/weighed against the means of achieving those objectives to arrive at an acceptable result.

7. There is no significant difference (p < .05) between trainers and managers/supervisors on the purpose of training in business and industry.

The assumption underlying this hypothesis is that when supervisors and trainers see the purposes of training as essentially the same, then training will achieve its intended goal based on industry needs hence, impact productivity. However, if trainers and supervisors see the purpose of training differently, there will be a problem with the focus of the training itself.

Purpose of the Study

The first purpose of this study was to obtain comprehensive information from business and industry trainers, and their supervisors that could be used to ascertain competency levels of the trainers. A second
purpose was to identify the intended versus actual use of these competencies. A third purpose was to examine whether there is any link between the possession of these competencies, application of these competencies, and the effects of applying these competencies on the quality of training done in business and industry.

Need for the Study

The need for effective trainers in business and industry is a practical and important one among industry and business owners who want an adequate payoff for their investment dollars, and among employees who are faced with the rapidly changing technology that renders their originally acquired skills, knowledge, and attitudes obsolete. Most people are aware that until recently, the training profession had not been recognized as part of a profitable business venture. The result of this lack of recognition among business and industry executives was the hiring of individuals with varieties of educational and job backgrounds to be responsible for training. Generally, the training department, if it existed in any business or industry,
was used as a means by top management to occupy inefficient managers and executives, who have not reached retirement and cannot be fired because of contractual obligations.

The computer age, as well as growing technology, also rendered it imperative for business and industry to re-train their manpower in order to be able to compete effectively in the world market. Business and industry, therefore, started to invest huge sums of money in training. The need arises to make sure that those charged with the training responsibilities have the required skills and know-how to do the job so that the investment would not be a wasted effort.

General procedure for the Study

After an extensive review of the literature on adult learning theories and models, business and industry training, and effectiveness and efficiency in business and industry training, a survey instrument was developed and mailed to 200 randomly selected trainers and supervisors who have membership with the Iowa Chapter of the American Society for Training and
Development (ASTD). The permission of the Iowa Chapter ASTD leadership was sought and received before the survey instrument went out to the individuals sampled.

Groups of questions were asked of the sample and the questions were divided into four parts, namely: questions that dealt with the perceived importance and the frequency of application of the 31 competencies; questions relating to general demographic characteristics of the sample; questions relating to the perceived purpose and effects of training in business and industry; and, finally, questions relating to standard measures of effectiveness in business and industry.

Out of the 116 (58%) returned instruments, 106 (53%) useable questionnaires were then analyzed for results. These data were analyzed by statistical methods using the SAS computer package. The results of the study were then reported, as seen in Chapter 4 of this research study.
Significance of Study

The study is significant because of the interaction of adult learning theories and principles in the composition of the competency requirements for trainers. These competencies were examined in the training context as seen by ASTD and as practiced by business and industry trainers. The study is also significant because recent documentations regarding the effects of some demographic characteristics on training in business and industry became apparent, and poses difficult questions to corporate employers. Finally, the study is significant because training quality and effectiveness which has been of serious concern among many business and industry executives can now boast of similar criteria in evaluating quality and effectiveness of training.

It is hoped that the implications of this study will help contribute to a better understanding of the body of knowledge and the discipline, from a theoretical and practical stand-point, as well as shed further light on the new area of training and development.
Study Limitations

This study is limited in the number of trainers reached due to costs involved in such a study. Another limitation to this study is the fact that not all the trainers in business and industry who are ASTD members were available to participate in the survey during the period of the research because of other prior training commitments within the state and beyond. Some trainers also were not able to read the chapter’s newsletter, where a written explanation of the research was featured. However, this limitation was reduced by the efforts of the Board of Governors of the ASTD Iowa chapter to communicate the importance of the study to survey participants in advance and request their full cooperation in the study.

These limitations make it difficult for the study to claim with certainty that those trainers reached are typical of all the trainers. It also makes it difficult to claim that the sample, which covers mostly trainers in manufacturing and the service sectors, is representative of trainers in all sectors of the business world. Therefore one can only make a generalization of this study to business and industry
trainers in Iowa. There is also an uncertainty as to the generalizability of the findings to similar states that are mostly agriculture or service-oriented. Hence, caution should be exercised with the interpretation of this research findings to encompass business and industry training efforts in other states.
CHAPTER II. REVIEW OF LITERATURE

The purpose of this chapter is to review pertinent literature on business and industry training, vis-a-vis organizational expectations and payoff, and how training can be accomplished by trainers with the application of adequate training competencies.

The chapter is divided into five sections, namely: an overview of business and industry training; relationship between adult education and training; the relevancy of training models in business and industry; why training programs fail; and, finally, the relationship of the literature to the present study.

Some of the sections have further been subdivided into subsections to help guide the reader through the literature review. Section 1 examines the historical as well as the current perspectives on business and industry training. It also examines effectiveness and efficiency as seen in business and industry training, and, lastly, examines factors affecting job training in business and industry.

Section 2 examines relationships between adult education and training, which include: the aims and objectives of education and training; role of theories
in training situations; the dynamics of the learning process; and the selection and organization of learning activities.

Section 3 examines the relevancy of training models in business and industry training. Section 4 examines the reason why training programs fail. Finally, Section 5 synthesizes the literature and discusses relationships of the literature to the present study.

An overview of business and industry training

This section examines the historical and current perspectives in business and industry training. The section also discusses the perception of effectiveness and efficiency in business and industry training. It concludes with an examination of factors affecting job training in business and industry.

Historical perspectives

The historical development of job training in industry and its rise to influence was "due in part to the addition of training and development departments to industrial firms" (Wenig and Wolansky, 1972, p. 4).
According to them, this situation occurred because both management and line supervision began to see the ineptness of their own training ability and the haphazard training and development programs. Many large business firms, such as Authur Anderson Company, Ford, IBM, and Pioneer Hi-bred, maintained large training and development departments which employ trainers and or hire entrepreneurial trainers to do corporate training.

The primary duty of the managers and supervisors of these training departments was "to work with both top management and labor to accomplish a broader and more adequate training program for all levels of workers" (Wenig and Wolansky, 1972, p. 4). Wenig and Wolansky (1972), quoted one such manager as saying "The performance of training and development directors and their departments to meet job training needs has not succeeded as hoped for by management" (p. 4).


These historical trends led to a re-evaluation of what training ought to accomplish in business and industry and where the focus of the training ought to be. Current studies suggest that the perspective of training in business and industry ought to reflect overall economic activity, because of the huge budget outlay that goes to training. Let us now see what the studies specifically suggest for training in the 1980s and for the 1990s.

Current perspectives

Currently, the issue of how training relates to overall economic activity has been a major focus for researchers involved with training and development in business and industry. Carnevale (1981) and Wenig and Wolansky (1983) concluded that "corporate training programs are today somewhat less affected by fluctuating economic conditions that have, in the past, resulted in decreased programming with the beginning of recession, and increased programming with economic recovery. This is due to the fact that educational efforts in industry
today are held in high regard by executives" (Wenig and Wolansky, 1983, p. 19).

Hawkridge (1988), in his research on financial services, concluded that "training is in recent years needed to improve banks' image and increase profits" (p. 5). Wenig and Wolansky (1983) also view training as a current "investment in future profits" (p. 24).

The types of training done in business and industry in recent years include orientation training, safety training, on-the-job training (OJT), formalized skills training, speed and accuracy in job performance, management training, general education, and others (Kearsley 1982, p. 121; Wenig and Wolansky 1983, p. 33).

Hawkridge (1988) contended that recently, unions have an important role to play towards employee training and in fact require it as part of a work contract which is frequently negotiated on.

On the current cost of training relative to size of the organization, Hawkridge (1988) concluded that "training costs are relatively higher for small companies, yet training must be done in any company that expands or changes its range of products and services" (p. 9). For Hawkridge, "expensive training may seem
prestigious at the time, but is only worthwhile when it is highly effective" (p. 10).

Lusterman (1985), in his recent study of business and industry training, also indicated that much training happens outside the formal educational system, through OJT, and special off the job courses. He estimated that informal training amounts to 80-90% of all job-related training.

On the sectors of business that currently offer the best career opportunities in training, Bard (1987) asserted that "during the early part of this decade, trainers tended to agree that communications, banking and finance, and health care services were the industries offering the best career opportunities in the training field. Mining and oil, construction, government (local state, federal), and retail trade were considered the worst industries for trainers seeking career growth. Opinions were mixed about training career opportunities in manufacturing and education. However, the majority of the respondents to the training surveys have tended to be in manufacturing, finance, insurance, banking, and business services" (p. 20).

Bard also indicated that in recent years "approximately
60% of those in the training field have undergraduate or graduate degrees in either education, business or management, or social science (psychology in particular)" (p. 20).

McKee (1969), Livingston (1971), and Carnevale (1981), researching on the short-term and long-term nature of training in business and industry, stressed that the position held by management today has changed from viewing job training as short-term into a long-term investment as a factor for economic planning and stability.

According to Wenig and Wolansky (1972), several factors worked against the change of management's position towards job training. These factors include: hiring from similar industries, the armed forces, and specialized training institutions during periods of greater manpower needs; soliciting trained workers from similar industries by offering higher pay, during low or poor economic conditions. To prevent this trend, Lebergott, as quoted in Wenig and Wolansky (1972), stated that "industry must be induced to sponsor more training, so that the process of employers bidding workers away from each other be reduced or eliminated
because it would tend to raise wages; hence cost of labor would go up, which in turn, would raise the price of consumer goods and services" (p. 4).

Wenig and Wolansky (1972) concluded that "...in a highly competitive market, those industries which have training programs could, in essence, sell their products at a lower price" (p. 5), and that management would soon realize the benefits of conducting its own training program. This concept was supported by Livingston (1971), who argued that "the total cost of training activities does not apply against the profits of the year in which the costs are incurred, but is spread over the entire period of time that training is expected to influence corporate income" (p. 51).

Despite economic forces, the American Society for Training and Development (ASTD) has in recent years also been instrumental in changing management's attitude towards the benefits of operating a job training program. Through the leadership of both its executive officers and membership, improved training programs were made possible (Wenig and Wolansky 1972, p. 5).

Training is also currently seen as part of human resource development in any organization where it exists and, in the words of Nadler (1986), human resource
development can be construed as 'training' when its primary purpose is to improve current job performance, as 'education' when its primary purpose is to help personnel advance to a different job, or as 'development' when it aims to strengthen the organization through benefiting individuals or organizational units (Nadler, 1979). Nadler (1979), discussing the concept of Human Resource Development, made a unique distinction among training, education, and development. According to him, "training is job-related learning experience, education is individual-related learning experience, and development is organization-related learning experience" (p. 254). Marsick (1987) concurred with this distinction while emphasizing that "training is preplanned educational activity, usually designed by the organization to further the learning of employees and improve work performance" (p. 101).

Overall, the ultimate goal of human resource development is to benefit the organization, as seen in Figure 1 below.
In the above illustration, training programs provide employees some sort of learning experience, such as a workshop, on-the-job training, self-instructional resources, or an external course. They acquire some new skill, knowledge, or attitude (SKA), from this intervention. These participants, or employees, return to the workplace and put the new SKA to some use, and the use of the new SKA produces positive results for the organization in terms of payoffs. Brinkerhoff refers to this training structure as "classical training." He, however, maintained that sometimes the route to organizational benefit is neither direct nor clear (for example, the provision of such things as cardiopulmonary resuscitation (CPR) instruction for employees, a trip to a professional convention, and
others). These training options need not result in newly-acquired skills that are applied in the workplace. They are intended as a reward, to create greater loyalty, commitment, and dedication in the recipient. These attributes, it is assumed, will pay off for the organization in increased productivity of recipients and even their subordinates, lower turnover, and the like (Brinkerhoff, 1987).

For human resource development programs such as training to pay off, participants must complete their training, learn the new skills taught, comprehend the motives behind the training, and transfer these skills to the workplace. Managerial support is also essential for this transition to take place. One of the key ingredients for payoff to result from training is that learning must take place.

In conclusion, the section lays emphasis on the focus of training to overall economic activity. The section also shows that there has been an increase in the perception of training as a positive force in businesses by top executives. Training is now used to improve a company’s image and increase profits. Training is now classified according to types to help
trainers plan their course of action accordingly. Small companies pay more for training because the economies of scale is with the big corporations. Career opportunities in training is with service and manufacturing, followed by education. Trainers are now highly educated and management attitude has changed to seeing training now as a long-term investment as well as part of a learning experience with the overriding criteria being the effectiveness and efficiency of the training process and outcome.

If the overriding criteria are effectiveness and efficiency, then how are they perceived with regard to business and industry training, and how do the competencies help in identifying the effectiveness and efficiency criteria?

Effectiveness and efficiency as perceived in business and industry training

According to Hawkridge (1988), "training is always likely to be seen as more effective if it is available where and when needed" (p.13). Hawkridge emphasized that companies look at training in several ways. "In general, they want training to be appropriate to the
individual, but they also want it to produce more or less the same standard of performance in all employees doing a particular job" (p. 11). He contended that companies are interested in a training system that: standardizes training, decentralizes training, reduces time required for training, and saves on training costs. He also argued that "in a few cases, companies may judge training effectiveness in terms of its success in meeting sudden large-scale training needs" (p. 12).

Business and Industry want training to result in improved job performance. Warren (1979), while not questioning the conclusions reached by Hawkridge, contended that "in other cases, companies look at training action itself, to evaluate whether training brought about desired change using established criteria to evaluate a participant's on the job performance, and evaluate participants themselves and the need for further training" (p. 144). Odiorne (1970) refers to this type of situation as "training by objectives," which entails moving from a previous position towards an objective (p. 148).

One way to evaluate the training process and increase training effectiveness is to standardize
training through the use of a system popularly known as "computer-based training" (CBT). According to Kearsley (1983), computer-based training reduces the actual training time, leads to improved job performance, and increased training control, reduces resource requirements for training, individualizing training and others (pp. 2-15). Hawkridge (1988) concurred with the above advantages of CBT, indicating that these advantages of CBT would also improve training effectiveness. Hawkridge (1988) concluded that "trainers see the arrival of computers and new communications systems as important because they hope the technology will make training more effective" (p. 11). Ineffectual training, according to him, is despised by employees, rejected by managers and damages company morale (p. 10).

When businesses talk about efficiency and effectiveness, one of the criteria used is cost/benefit measures. According to Kearsley (1982), cost/benefit analysis is a methodology or a set of procedures that allow trainers to answer questions such as:

1. How to justify existing programs.
2. How to achieve a better understanding and control over a training system.
3. How to reduce training expenditures and increase efficiency.
4. How to improve training results through increased effectiveness.
5. How to evaluate the feasibility or payoffs of a proposed training program.

Kearsley (1982) defines cost/benefit analysis as "a technique or method for assessing the relationship between results or outcomes and the costs required to produce them" (p. 2). He suggests three terms that describe how well trainers and business organizations are balancing their costs and results. These three terms are: efficiency, effectiveness, and productivity.

According to Kearsley, improved efficiency means that the business trainer has achieved the same results with fewer costs; improved effectiveness means that the business trainer has achieved better results with the same costs; and improved productivity means that the trainer has achieved better results with fewer costs. He therefore concluded that "improved productivity means improving both efficiency and effectiveness at the same time, or, put simply: Improved productivity equals doing more with less" (p. 3). Warren (1979) also
concluded that "cost/benefit analysis is important in training, especially when looking at effectiveness" (pp. 3,4). Kearsley (1982) emphasized that if the goal of a business is to reduce training expenditures, or trim the budget, then improved efficiency is the focus. If the problem is to improve results of training, then improved effectiveness is the focus. If the concern of the business organization or trainer is to do both cost cutting as well as producing better results, then improved productivity is the focus (p. 3). He proposed a training resource requirements model to deal with training costs. The model is shown in Figure 2 below.

Training costs can be computed using the basic model below by adding up all the rows and columns of the matrix. Each cell of the matrix can represent a different aspect of training costs. This model can be used to compare two training techniques or approaches and thus produce cost savings over an existing method. The model can only be used to compare efficiency, and not effectiveness (Kearsley, 1982, pp. 12,13).

Finkel (1987), while dealing with training costs, emphasized the need for training to obtain a return from the total investment, and that the quality of training obviously must rise to produce an offsetting
level of improved job performance. He argued that in this way, training time will also be effectively used and that learning will be enhanced by proper environmental design.

The Kearsley (1982) model assumes that the two training approaches to be compared lead to equal training results; that is, - they are equally effective." The model also assumes that training has cycles, namely: R & D, start-up, operational period, and transition period (pp. 13,14). Other cost/benefit
analysis models such as the "life cycle model," "benefits model," or "productivity model," can be seen in Kearsley (1982, pp. 13-19).

Benefits models, according to Kearsley, are used in cases where the explicit purpose of a new training approach is to improve effectiveness of the training (pp. 15, 57-79). According to him, "a benefits analysis must causally link the attributes of a training program with the major goals of the program and ultimately with those of the organization" (p. 15). The model shows that a number of training system attributes (for example, media capabilities, testing capabilities, student capacity, and others) result in certain training outcomes, such as student completion time, retention, attitude changes, motivation, and so on.

Training outcomes, in turn, lead to operational outcomes, like production time, equipment failure rates, sales volume, customer interactions, and others. When the outcomes are positive, there are benefits such as faster production times, reduced equipment failures, increased sales, reduced customer complaints, and others like that (p. 17). To use the model, Kearsley contended that it is necessary to identify all the causal
relationships for the training system concerned because businesses such as manufacturing will differ with sales organization.

Productivity models are intended to measure both efficiency and effectiveness. To improve productivity Kearsley argued that costs or resources utilized must be reduced at the same time training results are increased. He concluded that in the training realm, this measure is typically job proficiency skills such as improved sales, customers served, machines serviced, and others (p. 17).

Training effectiveness deals with the process of training and how trainers ought to select and use a learning medium which is interdependent with the training method used. According to Veri and Vonder Haar (1971), commonly used methods include: brainstorming, case study, demonstration method, discussion groups, lectures, workshops, forums, panels, role playing, simulations, and others (pp. 55-64). Davies (1973), while discussing training effectiveness, contended that "in arranging and allocating resources for learning, training managers and instructors have one primary responsibility. They must ensure that their training programs are effective" (p. 4). He also argued that
"effectiveness has become the central issue, and for this reason, a systematic and integrated approach has become essential" (p. 4).

Veri and Vonder Haar (1971) and Gardner (1976) discussed the evaluation of training effectiveness, and concluded that it can be done in stages, namely: early stage - when the main purpose of the trainer is to teach the method of each task to the trainee; a later stage - when trainers are concerned with development of speed; and the last stage - when the trainee is learning job organization, the view of his performance should focus primarily on his development of skill in staying abreast of the job (Veri and Vonder Haar 1971, pp. 83-99; Gardner 1976, pp. 110,111).

Reddin (1970), as quoted in Davies (1973), distinguished between effectiveness and efficiency in training. This distinction can be seen in Table 1. Davies (1973) contended that "effectiveness in the context of training does not involve personality traits or the quality of administration and instructional techniques. Effectiveness is simply a function of what the training-manager or instructor does; the extent to which he realizes the objectives of his position. If he
Table 1. Distinction between training effectiveness and efficiency (adopted from Davies, 1973)

<table>
<thead>
<tr>
<th>Training Effectiveness</th>
<th>Training Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do the right things</td>
<td>rather than</td>
</tr>
<tr>
<td>2. Produce creative alternatives</td>
<td>rather than</td>
</tr>
<tr>
<td>3. Optimize resource use</td>
<td>rather than</td>
</tr>
<tr>
<td>4. Realize learning objectives</td>
<td>rather than</td>
</tr>
<tr>
<td>5. Determine training needs</td>
<td>rather than</td>
</tr>
<tr>
<td>Do things right</td>
<td>Do things right</td>
</tr>
<tr>
<td>Solve problems</td>
<td>Safeguard resources</td>
</tr>
<tr>
<td>Safeguard resources</td>
<td>Follow duties</td>
</tr>
<tr>
<td>Lower cost of training</td>
<td></td>
</tr>
</tbody>
</table>

fails to realize the training objectives that have been set, he is ineffective — no matter how efficient he may be" (p. 4).

Trainers are judged by what they accomplish and this is the reason why "effectiveness and the definition of learning objectives go hand in hand, for without objectives, management is not possible" (Davies, 1973 p. 5). Veri and Vonder Haar (1971) also concurred and concluded that the "...objective is the desired outcome of a learning situation, stated in terms of observable behavior of the learner" (p. 25). Gardner (1976), however, argued that if trainers can define the problem
of the moment, and design their training to meet this specific problem rather than placing reliance on the same broad approach each time, they have a much better chance of success (p. 141).

Davies (1973) also observed that effectiveness can be learned and that it is rarely a quality that is brought to a situation. For him, therefore, effectiveness is something that is consciously done or achieved by learning how to manage a learning situation (p. 5). Davies (1973) indicated that successful achievement of learning objectives and the enhanced motivation and morale of the students are the main characteristics or indicators of an effective learning situation. The authors also argued that the characteristics or indicators of a successful or effective training program are three-fold, namely:

1. The absence of any great variation in performance between students.
2. The achievement of all or most of the agreed learning objectives.
3. The absence of any direct relationship between the ability of the trainees and their actual achievement at the end of the training (p. 5).
The trainer's aim in the first instance is to reduce the variance in student/employee performance. According to Davies et al., "it is his duty to destroy the normal distribution and replace it with a skewed distribution, indicating that the majority of the learning objectives have been successful and realized" (p. 5). Gardner (1976) summed up the solution of this particular problem by indicating that the approach must be geared to the needs of the individual when individual performance is desired and to group training when group performance is desired (pp. 141, 142).

In the second instance, the trainer must define objectives in the most precise terms possible and have measures to evaluate these objectives, to check if learning objectives were realized. In the third instance, Davies (1973) suggested that intelligence is a prime factor in job performance, and concluded that any one can be made to perform better (p. 6). In order for trainers to be effective, the authors indicated that training managers must make effective decisions. The training managers must decide, as a result of analysis, what the real training need is. The trainers must then determine the learning objectives to be realized. It is
only when this is accomplished that trainers will be able to start arranging or organizing their resources so as to realize these learning objectives and at the same time harness student motivation (p. 7).

Four primary skills are demanded of trainers in order for them to be effective in the training they do. According to Davies, these include: sensitivity, diagnostic ability, professional expertise, and flexibility (p. 8).

In conclusion, training is seen as efficient and effective if it is available when and where needed. It has to be appropriate to the individuals being trained and produce the same standard of performance in all employees. Systems such as cost-benefit analysis are now used to aid in this evaluation. Improved training efficiency and effectiveness was seen to be synonymous with increased productivity. Effectiveness was tied to learning objectives by the using the three characteristics of effective training. Since we have known how training effectiveness and efficiency is perceived in business and industry, the next logical question to ask is what factors affect training in business, so that trainers can be aware of what they are up against in trying to be effective.
Factors affecting job training in business and industry

According to Wenig and Wolansky (1972), certain factors affect job training in industry. "Historically, in the United States, the type and amount of training in industry has been dependent upon changes in political, economic and social forces" (p. 3). They also cited a U.S. Department of Labor Report published in 1968 which confirmed that training in industry within the last ten years was forced to change due to:

1. Society's and industry's concern with human resources;
2. Unemployment and underemployment;
3. Scientific and technological advances;
4. Organized labor's demand for better wages, welfare benefits and working conditions;
5. Employers requirements for workers.

Wenig and Wolansky (1972), as well as scholars such as Hawkridge (1988, p. 9), while accepting the fact that "the industry decision on whether to provide job training has mainly hinged on economic motives," also argued that "today, however, most union contracts have some stipulations for job training which is a form of societal benefit to the worker made possible by the
political and economic forces." They also cited an article by Mager and Pipe (1970) which indicated that "historically, industry has identified lack of job training as the problem to low worker productivity, when, in fact, it is merely a symptom of the problem in human performance" (p. 3).

The conclusions that can be drawn from this section of the literature review is that training has moved from a non-recognized business activity, to one that is highly respected by major business organizations. These business organizations use training in several ways, including: improving current job performance, helping employees advance to different jobs, and to strengthen the organization through benefiting individuals or organizational units. The business organizations either maintain a full training department within the organization or hire entrepreneurial trainers to do the work for them. The trainers are expected to possess and be skillful in the competencies required to be effective in the training they do. This will in turn provide the organizations with the expertise to be able to reap the benefits from training.
Now that we have established the link between training and learning, the appropriate place to further seek this relationship is in adult education literature. This is because most employees in business and industry are adults, and adult education deals with how to manage these types of learning situations for adults.

Relationship between Adult Education and Training

This section will examine the aims and objectives of education and training; some applicable theories in training situations; the dynamics of the learning process; and, finally, the selection and organization of learning activities.

Aims and objectives of Education and Training:

Davies (1973), citing the study done by Bloom, used the three major classes or domains to classify the aims and objectives of education and training. These three major classes or domains are the cognitive, the affective, and the psychomotor domains (pp. 84,85). These three categories also deal with the relationship
between objectives and instructional methods. According to Davies, if the objective of training is affective then, role playing and brainstorming can be applied. If the objective is both affective and cognitive, mini case studies, group discussions, seminars, independent studies, or business games can be applied. If the objective is purely cognitive, lectures, programmed materials, computer assisted instruction, and others can be applied.

The cognitive domain is concerned with such processes as recall of information, comprehension of material, and intellectual response. The affective domain is concerned with interests, attitudes, values, and appreciation. The psychomotor domain is concerned with physical responses such as those present in skilled performance on a lathe or typewriter (Davies 1973, p. 85; Goldstein and Sorcher 1974, p. 17).

For cognitive objectives, Davies (1973) recommended different evaluation strategies, such as achievement tests administered before and after instruction, reports, and essays. For affective objectives, self-evaluation questionnaires, course evaluations questionnaires, attitude and personality
questionnaires, behavioral measures such as attendance, behavioral checklists, and rating scales are suggested. For psychomotor objectives, performance tests such as accuracy, speed, observation by others, rating scales, and behavioral checklist are suggested. These evaluation strategies by implication involve evaluating different teaching/training methods (p. 85).

In conclusion, these domains help the trainer to select appropriate instructional methods based on the learning objectives that the trainer had defined. The role of theory in helping training situations is examined next in order to appreciate the difficulty trainers face in adopting learning theories and philosophies.

The role of theories in training situations

Training has been dominated by the philosophical doctrines of behaviorism (Marsick 1988, McKenzie 1985). This philosophical orientation assumes certain traits about the individual learner and the instructors’
belief systems. Training addresses formal as well as informal learning frameworks while encouraging a stronger emphasis on informal learning. The type of learning advocated by Marsick (1988) in training "assumes a level of employee participation that is seldom found, productivity under this framework must be redefined and conditions within the organization re-examined if such learning is to take place" (p. 10).

Davies (1973) and Goldstein and Sorcher (1974) agreed that McGregor’s Theory X and Theory Y can be applied in training situations. Theory X assumes that workers are lazy and have to be pushed to do things. Theory Y on the other hand assumes that workers are creative and participative. They, however, came down in favor of the Theory Y approach because, according to them, those who adopt this theory are less concerned with student's present behavior, but more with their potentialities for growth and development. Theory Y position demands a great degree of professionalism from trainers and managers (Davies 1973, pp. 11-13; Goldstein and Sorcher 1974, p. 19). Theory Y assumptions about the individual learner also best reflects the behaviorist ideology.
Marsick (1987) argued that most training models use the current andragogical approach of Knowles. Knowles' andragogical theory about adult learning is shaped on the conceptual framework and assumption that: adults are generally self-directing; they bring rich experiences to the learning environment; they are ready to learn what they can directly apply; they are performance centered. Marsick (1987) concurred with this analysis of adult learning assumptions (p. 136).

According to Nixon (1981), learning does not happen automatically, even when the learner is exposed to challenging situations or intensive learning experiences. It has its own logic, which can be helped along but not forced. Three stages of learning include: goal setting (self-assessment); skills development (learning new concepts, increasing assertiveness, and others); application of learning (planning and implementing new ideas and skills) (p. 4). Veri and Vonder Haar (1971) and Marsick (1988) also concurred that "the organization is a learning environment" (Veri and Vonder Haar 1971, pp. 73-76).
According to Knowles, McClusky researched the topic on self-directed learning (which training can be part of), urged organizations to provide adequate recreation facilities in the work environment and to use education or training to arrange the circumstance and the stimulation in order that the potential of high mental performance in adults may be actualized. Some suggestions on the way to achieve this result are to create a supportive learning environment, designing educational or training programs to tap some deep interests and need, designing a program that must restore confidence in the employees' ability to learn, providing a non-competitive environment, plenty of room for fellowship, considerable counseling to assist learners to relate instruction to personal needs, and to combine auditory and visual imagery (Knowles, 1979).

Knowles (1979) concluded that facilitators of learning (trainers included) seem to have three types of understandings. (1) They understand what is to be learned. (2) They understand the learners. (3) They understand useful procedures to help the learners build on their present competencies to achieve their
educational objectives. Finally, they not only understand these three issues well, but can put them together well (Knowles, 1979).

In summary, the use of instructional methods based on the objectives of the learning situation were seen to enhance learning. The application of McGregor's theory was seen to be helpful in identifying different strategies available to the trainer. Three stages of learning were introduced, and the types of understanding required of trainers and facilitators of learning were discussed. Since there is a theoretical relationship among learning objectives, learning situation, learning outcome, and learning in general, the next question is how this learning actually takes place for the individual learner.

The dynamics of the learning process

Wilson (1980) showed that learning can be a biological process, in which case learning becomes a change in one's response stimuli. Advocates of such a theory include Gagne (1965), Hull (1943), Skinner (1968), Spence (1960), and Thorndike (1949). Other
theorists such as Ausubel (1968), Bigge (1976), Brunner (1966), and Woodruff (1967) argued that certain phenomenological changes occur during the course of learning. According to Wilson, "cognitive and perceptual constructs such as insights, goal insights, cognitive field, and understanding mediate what is learned. People develop cognitive structures through experience and by perceptual restructuring of their experience. Learning is the process by which learners recognize their perceptual and psychological worlds or fields. Learning then, is a change in the learner's cognitive structure" (Wilson, 1980, p. 69).

Some authors such as Havighurst (1972) and Maslow (1970) focused on characteristics of the learner such as personal dynamics and conditions of readiness, and they described learning as an adjustment or maladjustment of a person in his environment. Yet, others such as Bales (1950), Flanders (1970), Schumuck and Schumuck (1971) focused on learning as a social process. They argued that "in order to comprehend the learning process, one must understand the interpersonal processes within learning experiences that facilitate or inhibit awareness and diagnosis" (Wilson, 1980,
The facilitator of these learning experiences must therefore possess enough skills, knowledge and aptitude (i.e., competencies), to recognize the existence of these inhibiting factors and ways to deal with them to achieve maximum benefit from the learning experience.

Wilson contended that except for the pure behaviorists, learning is a cognitive activity and "involves the use of intellect for the development and structuring of understanding about oneself and the world in which one lives. Learning is a continuous process of organizing and re-organizing what is known and believed to be true on the basis of new evidence. This process occurs within the individual, and during this process, numerous personal and emotional attributes interact." According to Wilson, learning culminates in change (Wilson, 1980, p. 70).

Learning is the process of growth and development whereby the learner organizes his perceptions of what he knows about himself, his environment, and various inter-relationships between the two. Three key processes were identified, which culminate in the learner's ability to perceive the isolated attributes of some total mass, to
organize these detached attributes into some pattern of unity, and to unite entities by formulating a new construct (Wilson, 1980, pp. 71,72).

These three key processes include: differentiation - which indicates the learner's ability to distinguish the various components of what appeared to be a homogeneous field; structuring - which is the mental process of organizing differentiated attributes into patterns within the given field in an effort to perceive the units of those differentiated attributes that compose a homogeneous mass; and integration - which is the cognitive process during which a person begins to combine various structured entities that initially appeared only as separate and detached attributes of a global mass (Wilson, 1980, pp. 71,72).

Other cognitive processes include abstraction - which involves the use of selected aspects of a phenomenon; and generalization - which is the mental process that is in a sense, the culmination of the progression of the cognitive processes. Generalization involves the perception of a common pattern, which is exemplified by all of the examples or instances. Thus,
generalization is a summation of the products of the process of abstraction (Wilson, 1980, pp. 71-73).

For Kidd, learning means change; it is active, not passive. The learner opens up himself, stretches himself, reaches out, and incorporates new experiences, and expresses or unfolds what is latent within him (Kidd, 1976, as cited in Knox, 1987 p. 5).

Kidd used the 3 R’s of adult education to explain learning. These are: relevancy, relationship or relatedness, and responsibility. The competencies should equip the trainer to identify and differentiate these three concepts and recognize when they are in operation during the learning experience. With relevancy, no adult will deeply absorb himself in study unless he sees, and unless he feels, that the subject is part of his life and destiny. With relationship, no skill, or knowledge or attitude (SKA) is discrete. The adult wants to understand how it relates to his experience, to what he is, and to what he knows. With responsibility, any one seeking learning must act, and by acting has assumed some obligation at least to question, to try to understand, or to do something about the consequence of the study (Kidd, 1976, as cited in Knox, 1987, p. 7).
Since we have demonstrated that training is a learning activity, the big question is: what are the criteria for the selection of learning activities? Secondly, does the possession and application of the competencies help trainers in the selection and organization of these learning activities?

**Selection and organization of learning activities**

Scholars such as McDonald (1987) and Knox (1987) had argued that the criteria for the selection of learning activities is the set of educational objectives to be achieved.

According to Knox (1987), "if the objectives predominantly entail acquisition of information, then the learning episode should include activities such as discussion or testing to discover the learner’s existing cognitive structure related to the topic and viewing a film or reading a book so that the learner can build new information on his current knowledge. If the objectives are predominantly skill development, then the learning episode should include activities such as simulation or coaching so that the learner can practice the skills he
is trying to develop. If the objectives are predominantly attitudinal change, then the learning episode should include activities such as discussion or role playing so that the learner can explore his feelings and those of others in a climate of stimulation and social support that is conducive to change of attitudes" (Knox, 1987, p. 99). The competencies of adult learning understanding, audio/visual skills, career development knowledge, competency identification skills, performance observation skills, and, finally, personnel/human resource field understanding would help the trainer in making an objective selection of learning activities.

Knox urged people who facilitate adult learning to understand which types of activities tend to be most effective for the achievement of various educational objectives and help the learners to select those activities that best serve their purpose.

Once the selection of the learning activities has been accomplished, then the learning activities have to be organized, so that the learner progresses well through them and achieves the objectives. These are conditions under which learners learn most effectively,
and would include aesthetics, preferred learning styles, and the overall learning environment. Knox identified three principles that might be considered as the learner makes decisions about the organization of his learning activities so as to optimize progression, application, and gratification (i.e., principles of organization).

With regard to progression, Knox contended that the achievement of educational objectives typically requires persistence in learning activities over a period of time. Persistence, he said, is more likely if the learning activities have a sense of coherence and sequence and forward movement, in contrast with brief and unrelated learning episodes.

With regard to application, Knox contended that in continuing education the main reason for behavioral change is to be able to apply the increased competence in the form of improved performance. The likelihood of application is greater if new topics are studied in relation to the context in which they are applied.

With regard to gratification, Knox argued that to be sure if learners persist in a relevant educational activity, it is likely that the experience is gratifying in some way. Since people participate in important
activities for multiple reasons, one or perhaps two predominate, and these reasons should be taken into consideration when organizing an educational activity (Knox, 1987, pp. 100-102).

These discussions blend directly into what McDonald urged researchers to use in the strategic evaluation of training (McDonald, 1987, p. 19). According to him, training has to prove its worth and the criterion of 'worth' include questions such as:

1). What are the valid criteria of the program's effectiveness?

2). If there are several criteria, how are the different criteria weighted?

3). What factors influence the validity of the criterion measures?

4). How context-bound are the criterion measure?

In an answer to these questions, McDonald suggested that primary evaluation criteria usually involve the immediate effectiveness of the training program: the amount of learning and the satisfaction of the participants at the end of the training workshop. Other criteria involve the participants' intention to use the training. Additional criteria involve application of
the training: whether the participants actually use the training, and how useful they find the training once they have tried to use what they have learned. If participants use what they have learned due to training, then typically one may be confident that the program is good (McDonald, 1987, p. 20).

In summary, any evaluation of training should look at amount of learning, satisfaction with the training processes, intended and actual use, and the effects of use. These, according to McDonald, seem like a reasonable set from which to judge the effectiveness of training program. Some of the questions that might arise with the use of these criteria include the following: What if the participants are satisfied and learned a significant amount, but never use what they learned, or use it sporadically, or use only some of what they learned? What if the participants are not notably happy with what they learned, but use it anyway because their superiors insist that they do so? What if the training they use has no visible, or only a marginal impact where it is supposed to have made a difference? Is the training program still a success (McDonald, 1987, p. 20)
McDonald further analyzed the most important criteria in assessing the worth of a training program, and these include: (1) "amount of learning" - measured by attitude change, skill development, and problem solving at the end of the training session; (2) "satisfaction" - (desirable but not necessary). This is because satisfaction can be influenced both by program characteristics and by other factors unrelated to the program; (3) "intended use" - usually measured by a statement from training participants that they will use what they learn; (4) "Actual use" - and the "effects of use" - which provide an even more critical test of the training program's effectiveness and learning. Since actual use also is determined by opportunity, difficulty in application, reward for use, and the effects of use on the learner, we must therefore ask: what level of improved job performance is required before we say that the training program is successful (McDonald, 1987, pp. 20-21)?

These questions will help address the issues at stake in this research, namely: What competencies are necessary for trainers in business and industry, what constitutes effective and quality training in business
and industry, and whether effective and quality training are experienced in business and industry. According to Warren (1979), in order to know whether the desired behavior is being affected, the trainer will need some kind of feedback on the trainee (p. 79). The training is measured on ability to bring about specified behavior, and therefore needs to be able to appraise the degree of success in achieving these behaviors (p. 79).

For these reasons, Warren (1979) suggested that it is necessary to consider how much training will be needed to qualify a trainer in the use of the method selected. He concluded that this issue is one of the problems of the OJT method, since the trainer is usually a supervisor or task leader with other duties more directly related to the job reward structure (p. 79). According to him, "training the competencies - the skills and knowledge available in the trainer, and the capability of time and motivation of the trainer become important considerations in the selection of an effective training method" (p. 79).

In conclusion to this section, it can be seen from the above literature review that there is a definite relationship between adult education and training.
Knowles (1979), defended the fact that training is part of adult education; that trainers are adult educators; and that training is education. According to him, "education is the systematic intentional development of increasing competence by individuals of all sorts with the help of the services and resources of people and institutions of all sorts" (p. 49).

Trainers work with people who see themselves as essentially adults, and so trainers are adult educators. Knowles defined adult education in three terms, namely: Process - i.e., process by which mature people acquire new knowledge, understanding, skills, attitudes, values, and interests, used by individuals for self-development and by organizations and institutions for growth and development of their employees; a set of organized activities - for the accomplishment of specific educational objectives; a field of social practice - which brings together into a discrete social system all individuals, institutions and associations concerned with the education of adults.

In selecting and organizing learning activities, facilitators use models to guide their process in a simplified format. These models help them to evaluate...
the progress and goals of the learning activity. The use of such models in training is therefore examined below to ascertain their relevance in a training situation.

The relevancy of training models in business and industry training

Training models have been in use for many years. Training models have been evolving steadily from the traditional model to a totally integrated systems model. Wenig and Wolansky (1972) state that "a traditional systems concept of training usually refers to a particular model or structure of training" (p. 12). The steps in this type of model is shown in Figure 3.

Needs ->Objectives ->Program ->Implementation ->Evaluation
Assessment Setting Design Mentation

Figure 3 The traditional concepts of the training model (adopted from Miller, 1969)
These steps are frequently thought of as discrete phases of development. The flaw in this design according to Miller (1969), is that needs assessment data are prematurely arranged and stated as training needs, which results in objectives being stated in very general and unmeasurable terms that are not related to real training needs. This event leads to the designing and implementation of programs which are irrelevant to real-life circumstances faced by trainees, which in turn results in training increasingly leading to more general and less precise training efforts. The above-mentioned problems in the traditional design could lead to inaccurate training results.

Miller (1969) proposed a better approach, which looks at training as an integrated process. In this type of model, training is conceived as an integrated process, consisting of sub-processes. Each sub-process would not become a final statement, but would continually be reworked to develop better objectives, questions, and answers. Such a model is shown in Figure 4 below.

Renton (1969), Odiorne (1970), Warren (1979), and Kearsley (1982) have all proposed what they referred to as "a total systems training model." According to
Renton, industry, like education, has been faced with numerous types of new training programs or curricular structures. The improvements in such areas as job training, relative to these new approaches, is usually done on a hit and miss basis in both education and industry. Some industries have hit upon a more systematic and critical procedure with which to gain satisfactory return on their investment in training. Warren (1979) suggested that the training system design provides a model for a training operation that can fulfill its functions under any organizational

Figure 4  Training model as an integrated process (adopted from Miller, 1969)
circumstances. "It provides a structure for identifying training needs and for creating and developing, presenting, and evaluating specific training actions" (p. 41). Renton's model is shown in Figure 5.

The mere application of these models is not enough by themselves to assure effectiveness of training. A training and development checklist can augment the possibility of gaining a successful training program. Such a checklist can be seen in Nixon (1981, p. 3) and in Renton (1969). Renton (1969) for instance, identified the checklist as follows:
1. Identify priorities for training improvement.
2. Analyze the job or operation.
3. Plan the strategy.
4. Develop the training course.
5. Classify candidates for training.
6. Provide the training.
7. Follow-up the training.
8. Evaluate and improve the training.

A flow chart diagram of the total systems model is shown in the Appendix.

According to Wenig and Wolansky (1972), "this system serves as a valuable decision-making device for directing the new employee to a job performance level comparable to his ability and job requirements. The guide also saves training time, reduces training costs, and maximizes employee self-initiatives because of his exact knowledge of what is required of him to meet company job standards" (p. 14).

Calvert (1985) had stated that service-related businesses, such as banks, are training-intense and that training models are used extensively. He reported that major areas of training for banks are: job skills training, 46.9%; management skills, 18.8%; marketing and
sales, including customer relations, 10.6%; human relations, 5.5%; new employee orientation, 3.4%; basic education, 0.9%; and occupational health and safety, 0.8%.

Other training models include the Brinkerhoff "Six-Stage Evaluation Model, "which derives directly from the cycle of key training decisions (Figure 6).

Stage I of the model evaluates the value and importance of problems and/or opportunities that may be responsive to Human Resource Development (HRD) interventions, assesses whether an education or training program might make a difference more worthwhile than some other intervention, and helps determine whether the process should proceed further with the selection or creation of a program design. This stage also seeks data that will predict whether on-the-job behavior can and should be changed. The competencies which could be helpful at this stage include: computer competency, cost-benefit analysis skill, industry understanding, library skills, objectives preparation skills, questioning skills, and personnel/human resource field understanding, among others.

Stage II aims at the production of a defensible HRD program design and might assess a given design's
practicality, theoretical soundness, and responsiveness or the relative merits of competing alternatives. This stage determines whether HRD can, finally move beyond the design stage to implementation. The competencies which could be useful at this stage include:

intellectual versatility, model building skills,
relationship versatility, research skills, training and development field understanding, and writing skills.

Stage III assumes that the design was good enough to "go", and is concerned with whether the design is, in fact, being installed and operated according to plan. This stage assesses the significance of unplanned departures from the design and helps determine whether departures from the design are necessary. The competencies which could be useful at this stage are computer competence, facilities skills, and group process skills.

Stage IV evaluates the assumption that new skills, knowledge, and attitude did in fact take place and that new SKA was acquired by participants. The competencies of adult learning understanding, audio/visual skills, computer competence, delegation skills, facilities skills, performance observation skill, and presentation skills, among others, will prove helpful.

Stage V assesses how much and how well acquired SKA are being translated into intended on-the-job behavior changes, and the durability of acquired SKA and their translation into the expected intermediary results posited by the logical plan of the program. The
competencies which could be useful at this stage include: career development knowledge, competency identification skills, data reduction skills, delegation skills, group process skills, performance observation skills, presentation skills, and organization understanding, among others.

Stage VI assesses the value of organizational effects and their relationship to training, as documented through Stages III to V, are the focus of Stage VI. This stage presumes that HRD has 'worked' thus far: (i.e., people learned something and are in fact using what they have learned). The competencies of cost-benefit analysis, data reduction skills, library skills, objectives preparation skill, and writing skills, among others will be helpful to the trainer during this stage.

Yet some adult education models can be useful to trainers during training. The Boyd and Apps (1984) model is a typical example (see Appendix). Boyd and Apps identified varied situations or settings or modes where learning can occur for adults. These situations
were categorized into three distinct dimensions, namely, transactional mode, client focus, and systems (Boyd and Apps, 1984, p. 5).

Transactional mode characterizes the nature of the learner’s situation and includes individual learning situation (Al), small group learning situation (Bl), and community learning situations (Cl). This mode connotes the interplay among the environment, the individuals, and the patterns of behaviors in a situation. The transaction between the learner and the educator takes place in their exchanges of instructional resources that enhances the individual knowledge and understanding (Boyd and Apps, 1984).

Here, the individual transaction mode (Al) refers to a situation in which an adult learns by himself, for example, through participation in an independent study course. The adult does not interact with other adult learners and does not have face-to-face contact with the educator (Boyd and Apps, 1984, p. 6). The group transactional mode (Bl) describes learning situations in which persons meet together to work on some problem/concern they have. The members of the group interact and may assist one another in learning and
there is a shared common commitment among learners on
the educational goals/purpose. Transaction in this mode
is said to be primarily intragroup.

The community transaction mode (C1) describes
learning situations in which a group of citizens gather
together to resolve a problem faced by the community.
Persons who participate in a community group are vitally
concerned about problems created by individuals or
institutions outside the group. Transaction in this
mode is said to be intergroup.

The second dimension of adult learning, according
to Boyd and Apps, is the client focus. In this
dimension, adult education serves three potential
clients, namely: individuals (A2), groups (B2), and
communities (C2). The client focus seeks to explain the
beneficiary of the educational activity. When the
benefits of the educational activity accrue to the
individual, it is said to be operating in the individual
client focus. When the benefits accrue to the group, it
is said to be operating in group client focus. When the
benefits of the educational activity accrue to the
community, it is said to be operating in the community
client focus (Boyd and Apps, 1984, pp. 8,9).
The third dimension of adult learning is the systems dimension. Boyd and Apps emphasized that all human enterprises participate in three systems, namely: personal (A3), social (B3), and cultural systems (C3). The personal system is the "set of distinguishing qualities or characteristics of an individual that affect his activity in a dynamic enterprise." The traits and patterns of the personal system remain fairly constant in various settings. Systems are created each time a group of individuals form a collective activity; each group's social system is a unique configuration. Social systems include the members patterns of interrelating roles, the status which the individual holds, the group norms and expectations, and other similar variables. The contours of a social system are unique to one setting.

The cultural system according to Boyd and Apps, is "structured upon the sets of beliefs, values, rules, principles, and customs that guide, in a general and pervasive manner, the conduct of persons. It includes shared assumptions about the conduct of human behavior and, as such, ethical, moral, and aesthetic valuations" (Boyd and Apps, 1984, p. 10). The traits and patterns
of the cultural systems also remain fairly constant in various settings. Boyd and Apps concluded that "in any given educational transaction, one system may play a more significant role than the other two" (Boyd and Apps, 1984, p. 10).

In concluding this section, the question posed is whether trainers can use these models in conducting training, and whether their use or familiarity by trainers would improve effectiveness and quality. My contention is that using the models to structure training programs would enhance effectiveness and quality because these models were built on theoretical grounds to evaluate learning outcomes and enhance learning.

If trainers then have all the arsenals of learning dynamics, the ability to select learning activities, and the use of models at their disposal, including the competencies to do effective training, why do some training programs fail? The answer to this question is examined in the next section.
Why training programs fail

Goldstein and Sorcher (1974), in discussing why training programs fail, insisted that "most training programs are not adequately structured about principles that enhance learning, for example, involvement rather than passive listening, imitation of appropriate behavior, reinforcement, practice of new skills, and transfer training" (p. 17). He also indicated that supervisor training also fails because of emphasis on issues that are theoretical, philosophical, and deal with aspects of management that are usually already well accepted by most trainees at the outset of training. According to Nixon (1981), "before people are willing to learn, they must see the need to learn, and the values of applying that learning to making improvements. Readiness to learn starts on the job, based on the person's own awareness of performance level and feedback from others" (p. 20). Newly appointed managers and supervisors see this need while managers and supervisors who have been long on the job do not.

In order to bring all the main ideas from the literature together, the literature review is related to the present study in the next section.
Relationship of the literature to the present study

After reviewing the literature for the basis of this research study, four specific and important issues arose from it that led to the design of the study itself and the design of the research instruments. First, the literature review showed that there is limited specific research study dealing with the possession and application of the competencies in business and industry, in which case the amount of learning as shown by the possession of and the importance attached to the competencies by the trainers becomes a major variable in the study.

Secondly, the review showed that for learning to be effective, it must not only end with the process of learning, but must be applied in the real world situation. Here the major variable that became pronounced for this study involved the intended and actual use of the competencies. Put in another way, the question of the application of the competencies to business and industry training becomes another major variable in this research study.
Thirdly, the literature revealed that it is through learning experience that skills, knowledge, and attitudes are acquired, which in turn leads to the satisfaction of learners as well as the development of value systems and importance attached to the learning itself. This development from the literature led to the identification of the importance attached to the competencies and the value placed upon them by the trainers as another important variable in the research study.

Finally, the review of literature showed that the effects of learning has to be balanced with the purpose and objectives of the learning itself. In this regard, the final major variable that was identified through the literature review was the effects of the use or application of the competencies to the training program by trainers. Models were then used by some scholars such as Brinkerhoff (1986) and Boyd and Apps (1984), and by others who looked at training effectiveness and training efficiency to evaluate training outcomes using the competencies and to evaluate the process itself as well as how it can be structured better respectively.
CHAPTER III. METHODOLOGY

Design of Research

A survey design was adopted in this study. Survey research is considered by Borg and Gall (1983) and De Vaus (1986) as "a method of systematic data collection, that can be used to sample public opinion, evaluate product acceptance, explore and evaluate many aspects of a system, and using the results to predict future needs" (pp. 404, 415).

One value of survey research lies in its ability to identify the distribution of a sample on a single variable, and it can also be used to explore relationships between two or more variables. These values of survey research are what is intended to be achieved in this particular research study. Data collection, instrumentation, and statistical analyses are explained below.

Population

The sample studied comprised 200 out of 350 trainers in business and industry who hold membership in the Iowa Chapter of the American Society for Training
and Development (ASTD). This population is unique in the sense that they are within a specific geographic region, that has similar industries with regard to average size, income level, and the number of employees. The business and industry found in this region of the country is typically agricultural supported manufacturing or a service related industry such as insurance and financial services.

Specific descriptions of this population's gender, age, major functional areas, years of experience as trainers, and relevant descriptive statistics are covered in the first section of Chapter IV of this study.

Instrumentation

A questionnaire was developed based on criteria from appropriate literature. The resulting instrument was submitted for a validity check to a panel of experts made up of the students major professor, the student's program of study (POS) committee members, as well as the current president of the Iowa Chapter of ASTD, who is a practicing trainer himself and also serves on the
Board of Governors of the Iowa Chapter. A pilot test of the instrument was done using 10 selected members of the local chapter of ASTD, and questionnaire items were modified based on these processes before the questionnaire was finally administered to the research participants.

The 31 competencies used in the survey instrument were those developed by American Society for Training and Development (ASTD), as seen in their research publication "Model for Excellence" (1983). The survey instrument consists of four major parts, namely, the competencies section, demographics and work-related information, purpose and effects of training, and perception of effectiveness measurement criteria. Instructions that would help respondents interpret the questions objectively were developed, and a Likert-type rating scale as suggested by De Vaus (1986, p. 83-94) and other research scholars was employed.

For the importance that trainers attach to the competencies, a five-point scale ranging from "Very Important = 5" to "Very Unimportant = 1" was applied. On the application of the competencies to the training that the trainers do themselves, the scale ranged from
"Often = 3" to "Never = 1." Trainers were then asked to rank any five of the thirty-one (31) competencies according to their importance to them. The scale ranged from "1 = greatest importance" to "5 = least importance." Trainers were also asked to indicate any five competencies they would like to develop further.

The second part of the survey instrument consisted of fourteen items. These items sought to get demographic data as well as information on some related specific work settings, such as top management's attitude towards training, percentage of work time devoted to training, and others.

The third part of the survey instrument focused on the purpose of training in the trainer's company, and asked them to identify their perceptions of the purposes and effects of training in their company.

The final part of the survey instrument assessed the effectiveness of training, and asked trainers to respond to several items relating to their perception of training effectiveness, the goals of training in their organization, and the organization's criteria for measuring effectiveness and quality of training offered by these trainers. An additional comments section was
also included in the instrument to allow the trainers to discuss any specific issue they wanted to add to shed more light on the problems of the study. (See Appendix).

A similar but specific instrument was also sent to those identified by ASTD executives as supervisors and managers of training departments in business and industry. This instrument was meant to compare responses of trainers and supervisors on two critical issues, namely, purpose of training in the organization and the criteria used to measure effectiveness in business and industry.

Validity of the Test Instrument

The validity of a measuring instrument is defined in terms of the degree to which the instrument measures what it purports to measure. Two types of validity are applied to this research study, namely, content validity and construct validity. Content validity was assured by the use of the ASTD's operationalized definitions of the competencies. These operationalized definitions were cross-checked by the researcher's major professor
and by the current president of the Iowa chapter of ASTD for accuracy. Construct validity, which is the extent to which a particular instrument can be shown to measure a hypothetical construct (example, "quality of training") in this research, was cross-checked and approved by the researcher’s major professor as well as by the current president of the Iowa chapter of ASTD.

**Reliability of the Test Instrument**

The reliability of the instrument is the level of internal consistency or stability of the measuring device over time. Since this instrument was developed by the researcher, and was used in a single administration of a single form of a test, the coefficient of internal consistency was applied. This coefficient, also known as Cronbach’s alpha, is expressed as follows:

\[
a = \frac{n}{(n-1)} \left[ 1 - \frac{E_2 \sum (y_i)}{E_2 x} \right]
\]

where:

- \(a\) = Cronbach’s alpha
- \(n\) = the number of items
- \(E_2 \sum (y_i)\) = the sum of item variances
- \(E_2 x\) = the variance of the total composite


Cronbach's coefficient alpha is a general form of the K-R 20 formula that can be used when items are not scored dichotomously. Alpha in most situations provides a conservative estimate of a measure's reliability. Specifically, the covariance matrix method was employed in the analysis, using the SAS package. This method enabled the researcher to control for other differences that may exist in the samples surveyed. Separate reliability tests were done for the "importance" and "application" measurement scales on the competencies.

For the "importance" measurement scale, a reliability coefficient alpha of 0.83 and a standardized item alpha of 0.83 for the thirty-one (31) items were recorded. For the "application" measurement scale, a reliability coefficient alpha of 0.84 and a standardized item alpha of 0.83 were recorded. These coefficients indicate a very high correlation among the test items.

Data Gathering

Data collection was done by mailing a questionnaire to a random sample of 200 business and industry trainers. This sample was drawn from a population of
about 350 trainers, who are members of the Iowa Chapter of ASTD. The five steps in selecting random numbers by De Vaus (1986, p. 53) were adopted in this study. This sample is about 63% of the entire population.

The sample includes two groups of people, namely, ASTD members who do training, and ASTD members who do some training as well as supervise trainers in business and industry. The rationale for this categorization is to enable comparisons on the rankings of the general purpose, effectiveness, and objectives of training, and on the quality/effectiveness of training as perceived by each survey respondent. The two groups were equally divided. Since there were approximately 100 managers or supervisors of training identified from the population, all of them were included in the survey. A second group of 100 trainers were then randomly selected from the remaining population. An alternate list of trainers, as was advised by De Vaus (1986, p. 65), was also compiled in case of unanticipated problems with non-respondents.

Survey participants were given approximately two weeks from the mailing date to return the completed instrument. Those not returning the instrument by the
given deadline were sent a follow-up letter of appeal with an additional questionnaire. This follow-up helped increase the total return rate to 58%.

Data Analyses

The first statistical analysis was a descriptive analysis of the data gathered by the questionnaire, suggested by research such as De Vaus (1986, p. 5). Following the descriptive analysis, factor analysis was applied to the competencies in an effort to reduce the data to manageable proportions. Factor analysis is based on the fundamental assumption that some underlying factors, which are smaller in number than the number of observed variables, are responsible for the covariation among the observed variables. Algebraically, this assumption is shown in the following:

\[
X_1 = b_1F + d_1U_1 \\
X_2 = b_2F + d_2U_2
\]

These equations imply that \(X_1\) is a weighted sum of \(F\) and \(U_1\), and \(X_2\) is a weighted sum of \(F\) and \(U_2\). Because \(F\) is common to both \(X_1\) and \(X_2\), it may be called a common factor; likewise, because \(U_1\) and \(U_2\) are unique to each
observed variable, they may be referred to as unique factors. Furthermore, the equation indicates that there is no covariation between F and U1, between F and U2, or between U1 and U2. That is,

\[
\text{cov} (F, U1) = \text{cov} (F, U2) = \text{cov} (U1, U2) = 0
\]

An orthogonal rotational method, popularly referred to as varimax rotation, was applied to arrive at one factor of importance variables referred to as the "Leadership" cluster in this study. A similar varimax rotation was applied to the application variables to arrive at two factors, referred to as the "Managerial" and "Analytical" clusters, respectively. (See Appendix for scree plots, stem and leaf plots, box plots, and normal probability plots of the factors used in the analysis.) The stem and leaf plots show overall patterns or trends in the data and indicate a symmetric batch. The box plots show where the middle lies, how spread out the middle is, and possible strays at the tail, indicating unexpected behavior in the data. The results of these plots indicate a symmetric batch and a normal curve for the data used in the study.

Following the factor analysis, each hypothesis was tested with methods appropriate for the data. In these
cases, the statistics used included: Pearson product moment correlations, analyses of variance (Anova), and chi square tests of independence.

General characteristics of the Sample

Composition of the Sample

Out of one hundred and sixteen (116) returned questionnaires, or a 58% return rate, a total number of one hundred and six (106) respondents, or 53% of the sample, provided information that was useable for the study. The composition of this sample is shown in Tables 2 through 12 below.

Table 2. Distribution of respondents by gender

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>49</td>
<td>46.2</td>
</tr>
<tr>
<td>Female</td>
<td>57</td>
<td>53.8</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 2 shows that trainers are almost evenly distributed with regard to gender. Therefore the sample is not dominated by one particular sex or the other.

Out of the one hundred and six (106) respondents that provided usable information for this study, fifty-two (52), or 49.1%, were employed or did jobs that pertained to training alone. The remaining fifty-four (54), or 50.9%, were involved as both supervisors or managers and as trainers. The distribution is shown in Table 3 below.

Table 3. Distribution of respondents by major functions

<table>
<thead>
<tr>
<th>Major Function</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trainers Only</td>
<td>52</td>
<td>49.1</td>
</tr>
<tr>
<td>Managers/Supervisors</td>
<td>54</td>
<td>50.9</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Distribution of respondents by age

The respondents' ages ranged from twenty-four (24) years to fifty-four (54) years. The mean age of the trainers is thirty-nine (39) years. The age distribution is shown in Table 4 below.

### Table 4. Distribution of respondents by age

<table>
<thead>
<tr>
<th>Interval</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>50-54</td>
<td>13</td>
<td>13.3</td>
</tr>
<tr>
<td>45-49</td>
<td>8</td>
<td>8.2</td>
</tr>
<tr>
<td>40-44</td>
<td>24</td>
<td>24.5</td>
</tr>
<tr>
<td>35-39</td>
<td>18</td>
<td>18.4</td>
</tr>
<tr>
<td>30-34</td>
<td>16</td>
<td>16.3</td>
</tr>
<tr>
<td>25-29</td>
<td>16</td>
<td>16.3</td>
</tr>
<tr>
<td>20-24</td>
<td>3</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>98</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Note:** Eight (8), or 7.5%, of the respondents did not respond to this question.

Distribution of respondents by years of experience

The respondents were asked to indicate how many years they have been involved in training. Trainers' years of experience ranged from one (1) year to thirty
(30) years, with a mean of fifteen (15) years. The distribution of the responses is shown in Table 5 below.

### Table 5. Years of experience as a trainer

<table>
<thead>
<tr>
<th>Interval</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>30-34</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>25-29</td>
<td>1</td>
<td>1.0</td>
</tr>
<tr>
<td>20-24</td>
<td>8</td>
<td>8.0</td>
</tr>
<tr>
<td>15-19</td>
<td>7</td>
<td>6.9</td>
</tr>
<tr>
<td>10-14</td>
<td>17</td>
<td>16.8</td>
</tr>
<tr>
<td>5-9</td>
<td>28</td>
<td>27.7</td>
</tr>
<tr>
<td>0-4</td>
<td>39</td>
<td>38.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>101</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

**Note:** Five (5), or 4.7% of the respondents did not respond to this question.

Table 5 shows that most of the trainers in business and industry have fifteen (15) or fewer years of experience in training, with thirty-nine (39), or 38.6% of the respondents with only one (1) to four (4) years of experience.
Distribution of respondents by educational level

Out of the one hundred and six (106) respondents in this survey, their education levels were distributed as shown in Table 6 below.

Table 6 shows that most trainers have either a bachelor's or a master's degree. One can infer from this distribution that trainers in this survey are highly educated.

Table 6. Educational level of respondents

<table>
<thead>
<tr>
<th>Educational Level</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than B.S./B.A.</td>
<td>12</td>
<td>11.3</td>
</tr>
<tr>
<td>B.S./B.A.</td>
<td>49</td>
<td>46.2</td>
</tr>
<tr>
<td>M.S./M.A.</td>
<td>37</td>
<td>35.0</td>
</tr>
<tr>
<td>Ph.D</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Distribution of respondents by educational background

The educational background of the trainers is distributed as shown in Table 7 below.

Table 7. Educational background of respondents

<table>
<thead>
<tr>
<th>Educational background</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Administration</td>
<td>25</td>
<td>23.6</td>
</tr>
<tr>
<td>Education</td>
<td>58</td>
<td>54.7</td>
</tr>
<tr>
<td>Science and Humanities</td>
<td>13</td>
<td>12.3</td>
</tr>
<tr>
<td>Other (Psychology, General Studies, Art, OJT)</td>
<td>10</td>
<td>9.4</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 7 shows that over one-half of the trainers had their educational background in education, while about one-quarter of the trainers had background in business administration.

Distribution of respondents by type of business sector

The respondents were comprised of trainers from different business sectors. This distribution can be seen in Table 8 below.
Table 8. Business sector of respondents

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>18</td>
<td>17.0</td>
</tr>
<tr>
<td>Retail</td>
<td>9</td>
<td>8.5</td>
</tr>
<tr>
<td>Service</td>
<td>77</td>
<td>72.6</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table 8 shows that approximately three-quarters of the respondents were employed in a service-related business, while less than one-quarter were employed in manufacturing.

Distribution of respondents by primary training background

The respondents were asked to identify where they got their training background. The distribution of the responses is shown in Table 9 below.
Table 9. Primary training background

<table>
<thead>
<tr>
<th>Primary Background</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academic</td>
<td>20</td>
<td>18.9</td>
</tr>
<tr>
<td>On-the-Job Training (OJT)</td>
<td>66</td>
<td>62.3</td>
</tr>
<tr>
<td>Both Academic and OJT</td>
<td>17</td>
<td>16.0</td>
</tr>
<tr>
<td>Military</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>ASTD</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 9 shows that an overwhelming number of trainers, sixty-six (66) respondents, or 62.3%, got their background through On-the-Job training. The remaining respondents were split on where they got their primary training background.

Distribution of respondents by percentage of total work time devoted to training

The respondents were asked to indicate the percentage of their total work time that is devoted to training. The distribution of the responses is shown in Table 10 below.
Table 10. Percentage of total work time devoted to training

<table>
<thead>
<tr>
<th>Interval %</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>80-100</td>
<td>33</td>
<td>32.7</td>
</tr>
<tr>
<td>60-79</td>
<td>16</td>
<td>15.8</td>
</tr>
<tr>
<td>40-59</td>
<td>21</td>
<td>20.8</td>
</tr>
<tr>
<td>20-39</td>
<td>25</td>
<td>24.8</td>
</tr>
<tr>
<td>0-19</td>
<td>6</td>
<td>5.9</td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Five (5), or 4.7% of the respondents, did not respond to this question.

Table 10 shows that approximately one-third of the trainers devoted most of their total work time to training other employees. Another one-third devoted at least one-half of their overall organizational assignment, if not more, to training other employees.

When the responses were examined according to the time devoted to different types of training, such as managerial, technical, clerical, line and staff, and other types, an interesting result emerged, as shown in Table 11 below.
Table 11. Percentage of time devoted to types of training

<table>
<thead>
<tr>
<th>Training types</th>
<th>Number</th>
<th>Raw %</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Managerial</td>
<td>82</td>
<td>77.4</td>
<td>28.77</td>
</tr>
<tr>
<td>Technical</td>
<td>54</td>
<td>50.8</td>
<td>18.95</td>
</tr>
<tr>
<td>Clerical</td>
<td>60</td>
<td>56.3</td>
<td>21.05</td>
</tr>
<tr>
<td>Line and Staff</td>
<td>68</td>
<td>63.9</td>
<td>23.86</td>
</tr>
<tr>
<td>Other</td>
<td>21</td>
<td>19.6</td>
<td>7.37</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>100.00</td>
</tr>
</tbody>
</table>

Note: Multiple response was requested on this variable.

Table 11 shows that with the exception of managerial type training, trainers were almost evenly divided on the amount of the different types of training they do in business and industry.

Distribution of respondents by size of organization

The respondents were asked to indicate the number of employees that work for their respective organizations. These data were meant to provide a feel for the size of the organizations. The distribution of the responses is shown in Table 12 below.
Table 12. Number of employees in the organization

<table>
<thead>
<tr>
<th>Interval %</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>22,500-25,000</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>20,000-22,499</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>18,000-19,999</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>15,000-17,999</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>12,500-14,999</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>10,000-12,499</td>
<td>4</td>
<td>4.7</td>
</tr>
<tr>
<td>7,500-9,999</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>5,000-7,499</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>2,500-4,999</td>
<td>13</td>
<td>15.1</td>
</tr>
<tr>
<td>0-2,499</td>
<td>59</td>
<td>68.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>86</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Note: Twenty (20), or 18.9% of the respondents, did not respond to this question. Some of these 18.9% might be self-employed trainers.

Table 12 shows that an overwhelming number of the business organizations are of very limited size employing 2,500 or fewer employees. Actually, approximately 84% of the businesses employed 2,500 employees or fewer. One conclusion from this distribution is that the business organizations that
are represented here are of small size with regard to the number of employees in the organization.
CHAPTER IV. ANALYSES AND RESULTS

The major findings of the research are presented in this chapter. These findings include:

1. Results of the tests of hypotheses relating to the questions of the study.
2. Results of other important data regarding training effectiveness in business and industry.

Results of Hypothesis testing

The enormity of the data collected on the competencies made it imperative that a more detailed statistical analysis was desirable. The thirty-one (31) competencies were used to solicit responses from trainers on two critical issues, namely:

1. The importance they attach to the competencies.
2. The application of the competencies to the training they do, and, if they do apply them, whether the training they facilitate is seen as quality and effective training.

A factor analysis was carried out on the competency variables. The first step in factor analysis involved the calculation of appropriate measures of
association for a set of relevant variables. The second step was to explore the data-reduction possibilities by constructing a set of new variables on the basis of inter-relations exhibited in the data. This approach is called the extraction of initial factors, and the principal-component analysis was adopted.

Principal-component analysis is a relatively straightforward method of transforming a given set of variables or principal components that are orthogonal (uncorrelated) to each other. The third step was the rotation to a terminal solution, which is the search for simple and interpretable factors. For this third approach, the orthogonal rotational method (varimax rotation) was adopted to achieve simpler and theoretically more meaningful factor patterns.

A scree plot of eigenvalues, a stem and leaf plot, a box plot, and a normal probability plot was done for each of the derived factors, after the factors became apparent (Appendix).

Scree plots are meant to show visually meaningful factor patterns. Stem and leaf plots are basically histograms with which one can readily see how wide a range of values the data cover; where the values are
concentrated; how nearly symmetric the batch is; whether there are gaps where no values were observed; and whether any values stray markedly from the rest. Box plots give measures of dispersion, and with them one can see how spread out the middle is, and how the tails relate to it. Finally, normal probability plots are graphical representations of the z-scores for the variables. All these graphs show a very good relationship among the factors analyzed and among the competencies that contributed to the grouping of the factors.

Of the importance variables, eleven (11) factors were originally retained by the mineigen criterion. However, after the varimax rotation, only six (6) competencies were loaded sufficiently on the first factor. These six competencies are industry understanding, objectives preparation skills, organization behavior understanding, organization understanding, performance observation skills, and questioning skills. All the six competencies were seen to have one crucial thing in common, which led to the label of "Leadership Cluster". Table 13 shows the factor loadings on the leadership cluster.
Table 13. Factor loadings on leadership cluster

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Competency</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Imp. 14</td>
<td>Industry understanding</td>
<td>.559</td>
</tr>
<tr>
<td>Imp. 19</td>
<td>Objectives preparation skills</td>
<td>.500</td>
</tr>
<tr>
<td>Imp. 20</td>
<td>Organization behavior understanding</td>
<td>.642</td>
</tr>
<tr>
<td>Imp. 21</td>
<td>Organization understanding</td>
<td>.523</td>
</tr>
<tr>
<td>Imp. 22</td>
<td>Performance observation skills</td>
<td>.516</td>
</tr>
<tr>
<td>Imp. 25</td>
<td>Questioning skills</td>
<td>.711</td>
</tr>
</tbody>
</table>

Note: Only one factor is considered with regard to the importance variable because of the results of the scree plot and eigenvalue results. This leadership cluster has an eigenvalue of 5.2728. This eigenvalue is the variance explained by the factor.

Of the Application variables, eleven (11) factors were also originally retained by the mineigen criterion. Two factors were predominant with this set of variables, as can be seen from the scree plot for Application eigenvalues (Appendix). However, after varimax rotation, five (5) competencies were sufficiently loaded on Factor 1. These competencies are: cost-benefit analysis, delegation skills, organization behavior...
understanding, and personnel/human resource field understanding. All the five competencies were seen to have one crucial thing in common, which led to the label of "Managerial Cluster." Table 14 shows the factor loadings on the managerial cluster.

Table 14. Factor loadings on managerial cluster

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Competency</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>App. 6</td>
<td>Cost-Benefit Analysis</td>
<td>.602</td>
</tr>
<tr>
<td>App. 9</td>
<td>Delegation Skills</td>
<td>.605</td>
</tr>
<tr>
<td>App. 20</td>
<td>Organization Behavior understanding</td>
<td>.767</td>
</tr>
<tr>
<td>App. 21</td>
<td>Organization understanding</td>
<td>.805</td>
</tr>
<tr>
<td>App. 23</td>
<td>Personnel/Human Resource field understanding</td>
<td>.500</td>
</tr>
</tbody>
</table>

Note: The eigenvalue for the managerial cluster is 5.519. This is the variance explained by the factor.

Also, four (4) competencies were sufficiently loaded on a second factor (Factor 2). These competencies are: data reduction skills, intellectual versatility, library skills, and performance observation skills. All four of these competencies also have one
crucial thing in common, which led to the label of "Analytical Cluster." Table 15 shows the factor loadings on the analytical cluster.

Table 15. Factor loadings on analytical cluster

<table>
<thead>
<tr>
<th>Variable name</th>
<th>Competency</th>
<th>Factor loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td>App. 8</td>
<td>Data Reduction Skills</td>
<td>.653</td>
</tr>
<tr>
<td>App. 15</td>
<td>Intellectual Versatility</td>
<td>.788</td>
</tr>
<tr>
<td>App. 16</td>
<td>Library Skills</td>
<td>.553</td>
</tr>
<tr>
<td>App. 22</td>
<td>Performance Observation</td>
<td>.562</td>
</tr>
</tbody>
</table>

Note: The eigenvalue for the analytical cluster is 2.537. This is the variance explained by the factor.

The above factor analysis results therefore helped to reduce the data to manageable proportions, and the subsequent analysis in this study was based on these factor analysis results. Hence, the importance variables used were only the leadership cluster variables, while the application variables used were the managerial and analytical cluster variables, respectively.
Hypothesis 1

It was hypothesized that there is a significantly (p<.05) positive relationship between the frequency of application of the competencies by trainers and the reported quality of training they do.

As shown in Table 16, on the reported quality and effectiveness of training as seen by the trainers, approximately eighty-seven (87) trainers, or 88%, indicated that their training program is either effective or highly effective. Thirteen (13) trainers, or 12.2%, indicated that their training was ineffective or that they could not decide whether it was effective or not.

Two Pearson correlations were done using the two application clusters, namely, the managerial and analytical clusters. The analysis revealed that there were no significant positive relationships between managerial cluster application (\(\bar{x} = 2.22\)) and the reported effectiveness of their training programs. The analysis also revealed that there were no significant positive relationships between analytical cluster application (\(\bar{x} = 2.19\)) and the reported effectiveness of their training programs (Table 17).
Table 16. Extent of training program effectiveness

<table>
<thead>
<tr>
<th>Scale</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Effective</td>
<td>10</td>
<td>15.1</td>
</tr>
<tr>
<td>Effective</td>
<td>77</td>
<td>72.6</td>
</tr>
<tr>
<td>Cannot Decide</td>
<td>12</td>
<td>11.3</td>
</tr>
<tr>
<td>Ineffective</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td>Highly Ineffective</td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Mean = 4.00 Standard deviation = 0.594

Table 17. Mean ratings, standard deviation, Pearson correlation, with effectiveness on Factors 1 and 2 (managerial and analytical clusters)

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Pearson Corr</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Factor 1 (Managerial)</td>
<td>106</td>
<td>2.22</td>
<td>0.44</td>
<td>-0.048</td>
<td>0.31</td>
</tr>
<tr>
<td>Application Factor 2 (Analytical)</td>
<td>106</td>
<td>2.19</td>
<td>0.42</td>
<td>0.021</td>
<td>0.42</td>
</tr>
</tbody>
</table>

This result implies that trainers who possess and apply more of these competencies do not necessarily do quality and effective training.
Hypothesis 2

It was hypothesized that there is a significantly (p<.05) positive relationship between the educational level and application of the competencies by trainers in business and industry.

Four educational levels were used in this hypothesis, as can be seen from Table 6. These educational levels are less than a bachelor’s degree, bachelor’s degree, master’s degree, and doctorate degree.

A one-way analysis of variance procedure was used in the analysis of these data. The analysis revealed that there were significant relationships (F-value = 2.28 and Pr > F = 0.0426) between educational level of trainers and their application of the competencies for the first factor, which is the managerial cluster (Table 18).

Table 18 reveals that educational level increases the possession and application of the managerial cluster competencies by trainers in business and industry. However, Table 19 reveals that there were no significant relationships (F = 0.32 and Pr > F = 0.809) between
educational level of trainers and their application of the second factor, which is the analytical cluster variables.

Table 18. Anova: managerial cluster and competency application

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3</td>
<td>1.553</td>
<td>0.518</td>
<td>2.82*</td>
<td>0.043</td>
</tr>
<tr>
<td>Error</td>
<td>102</td>
<td>18.710</td>
<td>0.183</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>20.263</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Significant at the .05 level.

Table 19. Anova: analytical cluster and competency application

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>3</td>
<td>0.175</td>
<td>0.058</td>
<td>0.32</td>
<td>0.809</td>
</tr>
<tr>
<td>Error</td>
<td>102</td>
<td>18.394</td>
<td>0.180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>105</td>
<td>18.569</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 19 reveals that educational level does not lead to increased application of the analytical competencies by trainers in business and industry. Hence, the hypothesis that there is a significant relationship between educational level and application of the competencies by trainers in business and industry is partially supported by the evidence at hand.

**Hypothesis 3**

It was hypothesized that there is a significant difference (p < .05) in competencies applied during different types of training.

Types of training were given as managerial, technical, clerical, line and staff, and other training, as shown in Table 20. The two application variable factors were used in doing a Pearson correlation procedure. The results are shown in Tables 20 and 21 below.
Table 20. Number of observations, mean, and standard deviation of types of training and application variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>API (Application Factor 1)</td>
<td>106</td>
<td>2.216</td>
<td>0.439</td>
</tr>
<tr>
<td>AF2 (Application Factor 2)</td>
<td>106</td>
<td>2.191</td>
<td>0.421</td>
</tr>
<tr>
<td>PTypeM (Managerial)</td>
<td>82</td>
<td>43.024</td>
<td>26.334</td>
</tr>
<tr>
<td>PTypeT (Technical)</td>
<td>54</td>
<td>35.852</td>
<td>26.835</td>
</tr>
<tr>
<td>PTypeC (Clerical)</td>
<td>60</td>
<td>27.067</td>
<td>26.681</td>
</tr>
<tr>
<td>PTypeL (Line &amp; Staff)</td>
<td>69</td>
<td>43.899</td>
<td>96.699</td>
</tr>
<tr>
<td>PTypeO (Other)</td>
<td>21</td>
<td>37.190</td>
<td>20.684</td>
</tr>
</tbody>
</table>

The table shows that the two application factor variables have a mean 2.22 for factor 1 and a mean 2.19 for factor 2. The Table also shows that managerial-type training has a mean 43.02; technical, 35.85; clerical, 27.07; line and staff, 43.89; and other 37.19.
Table 21. Pearson correlation: types of training with application variables

<table>
<thead>
<tr>
<th>Types of training</th>
<th>AF1 Managerial r (pr)</th>
<th>AF2 Analytical r (pr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTypeM (Managerial)</td>
<td>0.088 (0.214)</td>
<td>-0.082 (0.232)</td>
</tr>
<tr>
<td>PTypeT (Technical)</td>
<td>-0.223 (0.053)*</td>
<td>-0.127 (0.180)</td>
</tr>
<tr>
<td>PTypeC (Clerical)</td>
<td>-0.373 (0.002)**</td>
<td>-0.082 (0.265)</td>
</tr>
<tr>
<td>PTypeL (Line &amp; Staff)</td>
<td>-0.283 (0.009)**</td>
<td>-0.089 (0.234)</td>
</tr>
<tr>
<td>PTypeO (Other)</td>
<td>-0.524 (0.008)**</td>
<td>-0.059 (0.399)</td>
</tr>
</tbody>
</table>

* Significant at the .05 level.
** Significant at the .01 level.

Table 21 reveals that there were significant differences in competencies applied during different types of training. These significant differences occur only in technical-type training ($r = -0.223$ and prob > $r = .053$), clerical-type training ($r = -0.373$ and prob > $r = 0.002$), line and staff training ($r = -0.283$ and prob > $r = 0.009$), and other training ($r = -0.524$ and prob > $r = 0.008$) with application variable factor 1 (i.e., the managerial cluster). There were no significant
differences observed in analyzing types of training with application variable factor 2 (i.e., analytical cluster).

This result leads to the conclusion that the managerial factor competencies applied are a function of the type of training, especially clerical, line and staff, and other types of training. However, analytical factor competencies applied is also important to types of training. Hence, the hypothesis that there is a significant difference in competencies applied during different types of training was partially supported by the evidence at hand.

Hypothesis 4

It was hypothesized that there is a significant difference ($p < .05$) in the importance of competencies among trainers with different educational backgrounds.

Educational background is classified into four categories, as can be seen in Table 7. However, because only three of the categories had entries in them, the three were used for a one-way analysis of variance test.
These three categories include: Business Administration, Education, and Science and Humanities. These categories were used with the importance variable factor, which is the leadership cluster. The result of the analysis is shown in Table 22 below.

Table 22. Anova: educational background with leadership cluster variables

<table>
<thead>
<tr>
<th>Source</th>
<th>df</th>
<th>SS</th>
<th>MS</th>
<th>F</th>
<th>Pr&gt;F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>2</td>
<td>0.561</td>
<td>0.280</td>
<td>1.23</td>
<td>0.297</td>
</tr>
<tr>
<td>Error</td>
<td>93</td>
<td>21.214</td>
<td>0.228</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>95</td>
<td>21.775</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The analysis presented in Table 22 shows that there is no significant difference in the importance of competencies among trainers with different educational backgrounds. Therefore the research hypothesis of difference in the importance of the competencies with educational background was not supported.
Hypothesis 5

It was hypothesized that trainers who see the purpose of training as related to organizational goals will possess and apply significantly greater \( (p < .05) \) levels of competencies than those who do not see training and organizational goals as closely related.

In addressing this hypothesis, a reliability analysis for the purposes listed was examined. Since the items were not highly correlated with each other, an index could not be constructed meaningfully with all six purposes of training stated in the survey instrument. However, one purpose stood out among the six listed. This purpose is "meeting the objectives of the organization," and was better correlated to the other purposes than all the others. Hence, a Pearson correlation was run using the application variable factors 1 and 2 (i.e., the managerial and analytical clusters) with meeting the objectives of the organization. The results are shown in Table 23.
Table 23. Pearson correlation: purpose of training with application Factors 1 and 2

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AF1 (Managerial)</td>
<td>106</td>
<td>2.216</td>
<td>0.439</td>
<td>0.170</td>
<td>0.065</td>
</tr>
<tr>
<td>AF2 (Analytical)</td>
<td>106</td>
<td>2.191</td>
<td>0.421</td>
<td>0.162</td>
<td>0.076</td>
</tr>
</tbody>
</table>

The results shown in Table 23 indicate that there is no significant difference between trainers who see the purpose of training as related to organizational objectives and their application of the competencies. Hence, the research hypothesis of difference was not supported.

**Hypothesis 6**

It was hypothesized that there is no significant difference (p < .05) between trainers and supervisor/managers on the criteria for training effectiveness.
A chi-square (crosstabulation) analysis was done with trainers and supervisor/managers responses recorded into dichotomies. Trainers and supervisors were asked to rank their criteria for measuring effectiveness. The open-ended responses were then recoded and grouped into five major categories. These categories are: product-related, profit-related, employee-related, customer-related, and process-related objectives. The rankings that were the results of this question are shown in Tables 24 through 26.

Table 24. Overall rankings on personal criteria in measuring effectiveness

<table>
<thead>
<tr>
<th>Rankings</th>
<th>Criteria</th>
<th>Number n=95</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Employee-Related</td>
<td>33</td>
<td>34.8</td>
</tr>
<tr>
<td>2</td>
<td>Productivity-Related</td>
<td>31</td>
<td>32.6</td>
</tr>
<tr>
<td>3</td>
<td>Training Process-Related</td>
<td>17</td>
<td>17.9</td>
</tr>
<tr>
<td>4</td>
<td>Profit-Related</td>
<td>8</td>
<td>8.4</td>
</tr>
<tr>
<td>5</td>
<td>Customer-Related</td>
<td>6</td>
<td>6.3</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>95</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Note: Eleven (11) respondents did not respond to this question.
Table 25. Rankings on personal criteria in measuring effectiveness by trainers

<table>
<thead>
<tr>
<th>Rankings</th>
<th>Criteria</th>
<th>Number n=48</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Productivity-Related</td>
<td>20</td>
<td>41.7</td>
</tr>
<tr>
<td>2</td>
<td>Employee-Related</td>
<td>15</td>
<td>31.3</td>
</tr>
<tr>
<td>3</td>
<td>Training Process-Related</td>
<td>8</td>
<td>16.7</td>
</tr>
<tr>
<td>4</td>
<td>Profit-Related</td>
<td>3</td>
<td>6.2</td>
</tr>
<tr>
<td>5</td>
<td>Customer-Related</td>
<td>2</td>
<td>4.1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>48</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Note:* Four (4) trainers did not respond to this question.

Table 26. Rankings on personal criteria in measuring effectiveness by managers or supervisors (assumed to be organizational criteria)

<table>
<thead>
<tr>
<th>Rankings</th>
<th>Criteria</th>
<th>Number n=47</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Employee-Related</td>
<td>18</td>
<td>38.3</td>
</tr>
<tr>
<td>2</td>
<td>Productivity-Related</td>
<td>11</td>
<td>23.4</td>
</tr>
<tr>
<td>3</td>
<td>Training Process-Related</td>
<td>9</td>
<td>19.1</td>
</tr>
<tr>
<td>4</td>
<td>Profit-Related</td>
<td>5</td>
<td>10.6</td>
</tr>
<tr>
<td>5</td>
<td>Customer-Related</td>
<td>4</td>
<td>8.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>47</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

*Note:* Seven (7) supervisor/managers did not respond to this question.
Table 24 shows the overall rankings for criteria in the measurement of effectiveness by both trainers and supervisor/managers. The table indicates that criteria which relate to the skills and satisfaction of the employee being trained ranked first, with 31.3%, followed by criteria that are productivity-related, with 29.25%. Training process criteria ranked third, with 16.04%, profit-related criteria ranked fourth, with 7.65%, customer-related criteria ranked fifth, with 5.66%.

Tables 25 and 26 show the rankings by trainers and supervisor/managers respectively. One critical result in their rankings is that trainers ranked productivity-related criteria as the most important, followed by employee-related criteria, while supervisor/managers ranked employee-related criteria as the most important, followed by productivity-related criteria. All the other rankings remain exactly the same for both groups.

In doing the chi-square analysis, some of the criteria were collapsed because of small cell entries. Hence, productivity was collapsed with profit, and employee was collapsed with customer, while training process and the "not sure" entries were left intact. The chi-square result is shown in Table 27.
The chi-square analysis revealed no significant difference, with a value of 1.95 and probability value of 0.43. Hence, the null hypothesis of no difference between trainers and supervisor/managers on the criteria for training effectiveness could not be rejected at the .05 level of significance.

Table 27. Distribution of respondents by major function types and effectiveness criteria

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Trainers Only</th>
<th>Supervisor/Managers</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number (%)</td>
<td>Number (%)</td>
<td>Number (%)</td>
</tr>
<tr>
<td>Product/Profit</td>
<td>22 (20.75)</td>
<td>16 (15.09)</td>
<td>38 (35.85)</td>
</tr>
<tr>
<td>Employee/Customer</td>
<td>17 (16.03)</td>
<td>22 (20.75)</td>
<td>39 (36.79)</td>
</tr>
<tr>
<td>Process</td>
<td>8 (7.55)</td>
<td>9 (8.49)</td>
<td>17 (16.03)</td>
</tr>
<tr>
<td>Not Sure</td>
<td>5 (4.72)</td>
<td>7 (6.60)</td>
<td>12 (11.32)</td>
</tr>
<tr>
<td>Total</td>
<td>52 (49.06)</td>
<td>54 (50.94)</td>
<td>106 (100.00)</td>
</tr>
</tbody>
</table>

Chi-square = 1.95  Significance = 0.43
Hypothesis 7

It was hypothesized that there is no significant difference \((p < .05)\) between supervisor/managers and trainers on the purpose of training in business and industry.

A chi-square (crosstabulation) analysis was done with trainers and supervisor/managers' responses recorded into dichotomies. Trainers and supervisors were asked to identify the purpose of training in their organization. A single index was used for the responses received from the six purposes listed in the questionnaire based on reliability tests. The results of this analysis are shown in Table 28 below.

Table 28 shows that there was no significant difference \((\text{chi-square} = 2.232, \ p = 0.526)\). Hence, results failed to provide needed evidence to reject the null hypothesis that there is no difference between supervisor/managers and trainers on the purpose of training in business and industry.
Table 28. Distribution of respondents by major function types and purpose of training

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Trainers Only Number (%)</th>
<th>Supervisor/Managers Number (%)</th>
<th>Total Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not Sure</td>
<td>11 (20.00)</td>
<td>10 (18.18)</td>
<td>21 (38.18)</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>7 (12.73)</td>
<td>11 (20.00)</td>
<td>18 (32.73)</td>
</tr>
<tr>
<td>Applicable</td>
<td>7 (12.73)</td>
<td>9 (16.36)</td>
<td>16 (29.09)</td>
</tr>
<tr>
<td>Total</td>
<td>25 (45.45)</td>
<td>30 (54.55)</td>
<td>55 (100.00)</td>
</tr>
</tbody>
</table>

Chi-square = 0.73  Significance = 0.53

Note: Fifty-one (51) respondents did not respond to this question because approximately one-half of the respondents were self-employed entrepreneurs.

Results of the analysis of other important data concerning trainer competencies and training effectiveness

Where the training opportunities are in business and industry in Iowa

From the responses received on the questionnaire, it is evident that most business sectors in Iowa that employ trainers or operate a training department are
either in the service or manufacturing sectors. The service sector contributes to 72.6% of total trainer employment, while manufacturing contributes to 17.0% of total trainer employment.

The service sector includes financial institutions such as banks, credit unions, and savings and loans, as well as real estate and insurance. The manufacturing business sector in Iowa is not difficult to explain, since Iowa is an agricultural state. The agricultural products will have to be processed and equipment used for agricultural production has to be made. It is therefore worth noting that the manufacturing business sector in Iowa is predominantly agricultural.

The implication of this result is that those who wish to seek employment as trainers in business and industry are more likely to be successful if they concentrate their search efforts in either service or manufacturing sectors.

**Trainer’s role (proficiency) in business and industry**

The respondents were asked to identify the best description of the role they play as trainers in the organization. The distribution of the responses is shown in the Appendix.
An examination of the Appendix, shows the trainer's role in business and industry as a Marketer/Transfer Agent/Instructor/Group Facilitator with 59.4% of the trainers expressing this view. This role is followed by the role of Manager/Strategist with 14.2% of the trainers expressing this view.

However, an examination of the Appendix shows that trainers, while agreeing that the trainer's role should be that of Marketer/Transfer Agent/Instructor/Group Facilitator (63.2%), also felt that the trainer's role should be more of a potpourri (everything to everyone) involving a little bit of everything.

From these observations, one can conclude that the best role for trainers to perform in business and industry is that of Marketer/Transfer Agent/Instructor/Group Facilitator. Therefore, efforts should be concentrated on making potential trainers competent in these areas so as to be effective and productive. This situation will help limit the belief by some trainers that they ought to be everything to everybody. This will also help to streamline the training profession as a regulated and licensed profession.
This conclusion gives credence to the fact that, when asked what makes trainers effective, fifty (50), or 47.2%, of the trainers indicated that it is when participants have learned something from the training. Forty-seven (47) respondents, or 44.3%, indicated that their training will be considered effective if it contributes to organizational payoff. Only nine (9) respondents, or 8.5% of the trainers, indicated that their training will be seen as effective if the business or industry has a satisfied work force.

Since learning by the employees, and teaching by the trainers is an important aspect of the questions analyzed here, a licensed profession is thus recommended where those to be involved in training will have to meet certain criteria in their efforts to help employees learn and produce results from the learning experience.

Cooperation by organization's top management

The respondents were asked to characterize top management's attitude toward training in their organization. This questionnaire item was meant to find out if the claims in some literature that there is a lack of top management support for training was
justified. The distribution of the responses from the trainers is shown in the Appendix, and does contradict the belief that organization's top management is not supportive of training efforts.

In fact, the figures in the Appendix show that ninety-one respondents, or 85.8% of the trainers felt that top management's attitude towards training in their organization is either high or very high. Only fifteen (15) respondents, or 14.1% of the trainers, indicated that top management's attitude towards training in their organization is either low, very low, or indifferent.

The five most important competencies for trainers

Realizing that trainers in business and industry vary in educational backgrounds and levels, respondents were asked to indicate how well their educational discipline prepared them for being effective trainers. Forty-nine (49) respondents, or 46.2% of the trainers, indicated that they were either well prepared or prepared with regard to the competencies needed. Twenty-nine (29) respondents, or 27.3% of the trainers, indicated that they were either very ill-prepared or
ill-prepared, while twenty-eight (28) respondents, or 26.4% of the trainers, either were not sure or had no response to the question.

They were also asked to identify and rank the five most important competencies according to their order of importance to them. The following competencies emerged as the top pick among trainers in business and industry, as shown in the Appendix.

1. Presentation skills
2. Adult learning understanding
3. Training and development techniques understanding
4. Writing skills
5. Group process skills

Presentation skill is defined as the verbal presentation of information in a manner such that the intended purpose is achieved. Adult learning understanding is defined as knowing how adults acquire and use knowledge, skills, and attitude, and understanding individual differences in learning. Training and development techniques understanding is defined as knowing and understanding the techniques and methods used in training. Writing skills is defined as
preparing written materials which follow generally accepted rules of style and form, is appropriate for the audience, and accomplishes its intended purposes.

Finally, group process skill is defined as influencing groups to both accomplish tasks and fulfill the needs of their members.

However, when trainers were asked to indicate and rank the five competencies that they need to develop more, the following list resulted, as shown in the Appendix.

1. Presentation skills
2. Computer competency
3. Writing skills
4. Group process skills
5. Cost-Benefit analysis
6. Adult learning understanding

Two new competencies emerged here as compared to the ones indicated and ranked as the most important. These two competencies are: computer competency, defined as familiarity with and being able to use computers; and cost-benefit analysis, defined as assessing alternatives, in terms of their financial, psychological, and strategic advantages and disadvantages.
This response on the importance and ranking of the competencies and the competencies that trainers need to develop more does not mean that the rest of the competencies are not important. All that these data show is that the competencies listed above will help trainers to be more effective and do more quality training as compared to the rest of the competencies.

It is noteworthy however, that some of the trainers did not see some of the competencies as important to the training they do, and have never applied them to any of the training they facilitated. The competencies not seen as important, and not applied by at least 10% of the responding trainers include:

1. Computer competency
2. Cost-Benefit analysis skill
3. Delegation skills
4. Futuring skills
5. Library skills
6. Model building skill
7. Personnel/Human resource field understanding
8. Research skills
9. Training and development field understanding
Computer competency is defined as familiarity with, and the ability to use computers. Cost-benefit analysis skill is defined as assessing alternatives in terms of their financial, psychological, and strategic advantages and disadvantages. Delegation skill is defined as assigning task responsibility and authority to others. Futuring skill is defined as projecting trends and visualizing possible and probable futures and their implications.

Library skill is defined as knowing how to use library resources. Model building skill is defined as developing theoretical frameworks which describe complex ideas in understandable and useable ways. Personnel/Human resources field understanding is defined as understanding issues and practices in other human resources areas. Research skill is defined as the knowledge of systematic techniques for a formal inquiry. Finally, Training and development field understanding is defined as the familiarity with issues such as technology, social, economic, professional, and regulatory trends in the training and development field.

Some of these competencies that were not seen as important can be explained by the fact that they are not
directly related to the effectiveness of an actual training program. Others, such as cost-benefit analysis is not given much attention by trainers because of the belief that the benefits of training in an organization is difficult to quantify on a short term basis, when periodic budget allocations are being evaluated.

Yet, some of the competencies such as research skills and model building skills might not be seen as important because these skills are acquired through advanced degrees, which most of the responding trainers in this study do not have.
CHAPTER V. SUMMARY, CONCLUSIONS/DISCUSSIONS, AND RECOMMENDATIONS

Summary

This study was designed to get information on the perception of trainers and managers/supervisors in business and industry on what can be used by the training profession to conduct and evaluate effective and quality training. The training competencies proposed by ASTD were used as a major tool in defining the skills that trainers need in order to be effective.

The first chapter dealt with the importance of training in business and industry, its historical background and uses, the focus of training, and who benefits from training. This led to the development of certain assumptions and procedures for the study.

The second chapter dealt with a review of available literature regarding training. Since training involved adult learning, some relevant adult learning theories were reviewed. Other areas covered in this chapter included a comparison of the historical and current perspectives of training in business and industry; effectiveness and efficiency in business and industry training; factors affecting job training in business
and industry; and a review of some training models to see how they fit into the total picture of training, learning, and quality. Based on this review, some hypotheses were advanced to be tested.

The third chapter dealt with a description of the methods and procedures used in gathering the data. The chapter also dealt with the statistical/analytical techniques used in analyzing the data that was gathered for the study. This included validity and reliability checks and estimates.

The fourth chapter focused on the presentation of the descriptive statistics in tabular and graphical formats with explanations of key distinguishing points. The chapter also presented the results obtained from the analyses of the data.

The fifth and present chapter summarizes the results of the hypotheses tested, and conclusions are drawn based on these results. This chapter also discusses the conclusions and proposes certain recommendations based on the results of the research hypotheses, as well as other information gathered from analyzing the data.

In order to re-focus attention to the central issue of this research, the questions of the study are
re-stated below to guide the reader through answers provided by the study.

1. Do trainers actually have the ASTD-required competencies, and do they apply them in the training they do?

2. Are these competencies perceived as essential to training?

3. Are different competencies applied in different types of training and what is the deciding factor?

4. Are some of the competencies seen as more important than others, and, if so, which ones and why?

5. Does the application of the competencies by trainers impact the quality and effectiveness of a training program?

6. Do differences exist between the perceptions of trainers and supervisor/managers on the criteria for measuring effectiveness, as well as on the purpose of training in business and industry?
Based on these questions, results of the hypothesis tests were given and conclusions drawn from these results as shown below.

Conclusions/Discussions

The conclusions of this study are presented in two parts, namely: (1) results relating to the questions of the study and the hypotheses tested, and (2) results of pertinent information gathered from the data which may help the training profession in general, and especially training in business and industry. Discussions of the results are also presented along with each result analyzed.

Conclusions relating to the Hypotheses of the study

Conclusion of Hypothesis 1

The findings in Chapter IV of this study show that there was no significant positive relationship between the two application variable clusters (managerial and analytical) and the reported quality of training done.
Based on these findings, there was insufficient evidence to reject the null hypothesis of no positive relationship.

**Discussion 1**

The quality/effectiveness measurement index of response categories and frequencies shown in Table 26a indicates that 72.6% of the trainers saw the training in their organization as effective, while 15.1% saw the training as highly effective. Only 11.3% could not decide on this question. One can safely conclude that an overwhelming number of trainers (87.7%) saw the training in their organization as either highly effective or effective in assuring that participants learned something and in contributing to organizational payoff. When asked what makes trainers effective, 47% of the respondents indicated that it is when participants have learned something from the training, 44.3% of the respondents indicated that it is when training contributes to organization payoff, and only 8.5% of the respondents indicated that it is when an organization has a satisfied work force.
This result supports MacDonald's claim that primary evaluation criteria for effectiveness involve the amount of learning. However, the result did not support his claim that satisfaction of participants at the end of the training workshop would be an important factor in this evaluation.

The managerial application variable cluster received a mean score of 2.22 and a standard deviation of 0.44, while the analytical application variable cluster received a mean score of 2.19 and a standard deviation of 0.42. Despite this result, it seems that application by trainers does not necessarily relate positively to the extent of quality and effectiveness of training.

Referring back to the question of the study, as to whether trainers actually have the competencies, the answer is that they do have them based on the fact that they apply them. One does not apply what one does not have; hence application in this study infers possession. However, as to the question whether their application of the competencies impacts the quality of a training program, the answer is that we could not determine this point based on the evidence at hand. However, the literature review revealed that business and industry
want training to result in improved job performance, which in turn is an indicator of effectiveness and quality training.

So, why the competencies? It does seem that the competencies should be part of an educational curriculum for aspiring trainers (a broad-based knowledge) instead of a required skill for the professional practitioner. Possession and application of the competencies assures what Kearsley (1982) called efficiency and effectiveness criteria, through the use of cost-benefit analysis. Kearsley indicated that the cost-benefit analysis helps trainers justify existing programs, achieve better understanding and control over a training system, reduce training expenditures and increase efficiency, improve training results through increased effectiveness, and evaluate payoff.

Trainers should be able to distinguish effectiveness from efficiency, as suggested by Reddin in Sork (1984) if they have the required competencies. This situation also supports Davies (1973) claim that effectiveness can be learned, and that it is something consciously done or achieved by learning how to manage the learning situation. Also, the possession and application of the
competencies, when done correctly, should fit into Brinkerhoff's (1987) model on how training can lead to organization payoff.

Marsick (1988) and McKenzie (1985) advised that under the expectation of employee participation in training, productivity must be redefined if learning is to take place.

Conclusion of Hypothesis 2

The findings in Chapter IV indicate that there is significance in the relationship between educational level and the application of the competencies by trainers in business and industry. However, this significance is obtained with the managerial variable cluster and not with the analytical variable cluster.

Based on these findings, we reject the null hypothesis of no relationship and accept the fact that indeed those with higher educational levels do see the importance of the competencies and apply the managerial cluster variables more in the training they do. The managerial cluster variables include: cost-benefit
analysis, delegation skills, organization understanding, organization behavior understanding, and personnel/human resources field understanding.

However, with regard to the analytical cluster variables, there was insufficient evidence/information to make a similar conclusion, hence the research hypothesis of a relationship between analytical cluster variables and the educational level of trainers was not supported.

Discussion 2

The important question evaluated here is whether the competencies are seen as essential to training, and, if so, whether more or less education affects this perception. The answer to this question is that, despite the fact that competencies are seen as essential to training, the only application variable that could claim strict adherents/followers based on educational level is the managerial cluster of variables.

The reason for this result might lie in the fact that most of the manager/supervisors in the survey are more interested in those variables than in the analytical cluster variables. In fact, their managerial
duties involve most of the individual items on the cluster on a daily basis. The above result supports Davies (1973) claim that among the four primary skills that a trainer needs to be effective are diagnostic ability and professional expertise, among others. Diagnostic ability is enhanced by higher educational level and may be a contributing factor to the significant result found for this hypothesis.

**Conclusion of Hypothesis 3**

The findings in Chapter IV indicate that there is significance when evaluating differences in competencies applied during different types of training, especially with clerical, line and staff, and "other" training types. We therefore reject the null hypothesis of no significant difference and conclude that indeed trainers apply different competencies for different types of training, especially when managerial cluster variables are the yardstick.
The question of the study relevant to this hypothesis is whether different competencies are applied in different types of training, and what is the deciding factor.

The answer to this question is yes. This implies that different competencies are applied for different types of training and the deciding factor is whether the competencies relate to managerial cluster variables or analytical cluster variables. If they relate to managerial cluster variables, then it is obvious that clerical, line and staff, and "other" training types might not need the application of some competencies for the trainers to assure that employees (here training participants) have learned something from the training.

This condition also means that employees certainly do not need managerial cluster variables to ensure organizational payoff for these three training types. Trainers who are versed in Adult Education theories will realize the importance of the three classes of domains, namely, the cognitive, affective, and psychomotor domains. Training objectives should be matched with the particular domain in question in order to produce good
results. This suggests that those involved in technical training ought to adopt psychomotor domain and apply competencies to reach the desired objective. Managerial training on the other hand ought to be better with the cognitive domain approach, involving intellectual response. Hence, the adult education theory which stipulates that different teaching and learning styles help adults learn is supported by the results of this hypothesis. Also supported is the interactive training approach as suggested in the literature review by those who advocated McGregor’s Theory Y approach.

**Conclusion of Hypothesis 4**

The findings in Chapter IV show that the observed difference in the importance of competencies among trainers with different educational background is not significant. We therefore fail to reject the null hypothesis of no significant difference in the importance of competencies among trainers with different educational backgrounds.
Discussion 4

One of the questions of the study asked whether some competencies are seen as more important than others, and, if that was the case, which ones, and why.

The descriptive statistical analysis revealed that some of the competencies were seen as more important than the others by virtue of the rank they received by the trainers. These important competencies are: presentation skills, adult learning understanding, training and development techniques understanding, writing skills, and group process skills. Trainers also reported that they needed to have more expertise in all of the above-listed competencies in addition to computer competency and cost-benefit analysis skills.

There is no doubt the above-listed competencies are the core and central emphasis of theories in adult teaching and learning. Computer competency is a technological event that peaked with current trends in technological advancement. Cost-benefit analysis is the result of recent calls in the literature by both businesses and researchers for trainers to justify their existence, in view of the fact that over $40 billion is spent annually on training.
However, the results of the statistical analysis show that no particular group of trainers can claim ownership of valuing of the importance of the competencies. All groups of trainers see the competencies as important, especially when they are categorized by educational background.

The results of the data, however, uphold the belief that most trainers come from Education and Business backgrounds. The question as to why would be an interesting research topic for those interested in exploring this relationship further. The results may be suggesting to business and industry to continue the current practice of hiring trainers from any educational background. No specific educational background has a monopoly on the importance trainers attach to the competencies in trying to meet the organizational objective, and no educational background has an advantage over the other in this regard.

An examination of Table 7 shows that over one-half (54.7%) of the trainers who responded to this survey have backgrounds in Education. If this is the case, the important question to ask is which academic disciplines prepare people well in their role as trainers, since
there seems to be no difference in the importance attached to the competencies with different educational background. This question should make an interesting study for researchers wishing to pursue it further, and is encouraged by the present researcher.

**Conclusion of Hypothesis 5**

The findings in Chapter IV indicates no significance in this relationship. Insufficient evidence led to the lack of support for the research hypothesis suggesting a difference among trainers who see the purpose of training as necessarily related to organizational goals and the possession or application of the competencies and the trainers who do not see them as necessarily related.

**Discussion 5**

This hypothesis is intended to help answer some part of the question of the study as to whether trainers have the ASTD-required competencies, and whether they apply them in the training they do (assuming that the training they do is to benefit the organization).
Since organizational goals center on productivity and profitability, and since these goals blend well with some of the goals that trainers themselves have, the results of the data showed that trainers indeed have the competencies. However, having the competencies or not does not say much about whether the goals of the organization are met or not met in training sessions.

Conclusion of Hypothesis 6

The findings in Chapter IV indicate no significance. Insufficient evidence led to the failure to reject the null hypothesis. Hence, the null hypothesis of no significant difference between trainers and manager/supervisors on the criteria for training effectiveness is retained.

Discussion 6

The question of the study that this hypothesis is meant to answer is the question whether differences exist between the perception of trainers and manager/supervisors on the criteria for measuring effectiveness of training in business and industry.
It is apparent that we could not find sufficient evidence to establish significance at the set alpha level of .05. When a criterion is present, most manager/supervisors and trainers use mostly similar criteria in their evaluation of the effectiveness of a training program. It is to be noted, however, that despite the fact that their rankings on these criteria might be slightly different, they are generally similar with the major criteria used. These major criteria include: increased productivity, increased profit, increased quality of performance, and feedback or evaluation from participants among others.

For most respondents, there was a general feeling that effectiveness of training is not currently measured or monitored by either the trainers themselves or the corporate staff. Those who indicated that they or their organization did not have any formal effectiveness measure had the following comments to justify their stance.

"Training in our organization will not become effective until management moves from lip service to support for the time necessary to train for human results, as well as productivity goals."
"We need to do a better job following up with training tools to help measure its effectiveness."

"Most corporations look at training as important, but only give it a lot of lip service and not actual support. Training itself is a great motivator, so why have companies not used it to their advantage?"

"Perhaps the most significant factor is that trainers need to experience the jobs themselves as much as possible. Whether performance skills or technical skills, you as a trainer cannot develop an effective program and implement it without expecting the reaction based on your own experience as a worker or manager."

"Our company does not have a formal training program. That decentralization may reduce effectiveness."

"I often find it very difficult to measure effectiveness of training in 'soft skill' areas such as management development, communication, etc."

"Production needs still outweigh training needs. I often am given too many new people at one time. Management says 'be flexible'—which means they will hire as many as they want, and have little regard for the reduced effectiveness of the training. They don’t want to hear my troubles."
All the above statements focus on the need for image building and enhancement, management support, trainer experience on the job, and ability to differentiate different types of training. These form the critical mass for the development of standard measurement criteria for training effectiveness and quality.

Conclusion of Hypothesis 7

The findings in Chapter IV indicate no significance. Insufficient evidence led to the failure to reject the null hypothesis that there is no significant difference between trainers and manager/supervisors on the purpose of training in business and industry.

Discussion 7

The question of the study that this hypothesis is meant to answer is the question whether differences exist between trainers and manager/supervisors on the purpose of training in business and industry. The answer to this question is that we did not find enough evidence to establish that there was a significant difference between the two groups involved.
This result infers that trainers and supervisor/managers think of similar purposes when they are involved in training or training decisions.

Recommendations

Based on the results of the hypotheses, as well as other results from the data, it is important for ASTD to continue emphasizing the competencies proposed. However, a more realistic goal would be to define clusters of variables such as was done in this study, for example, the Managerial, Leadership, and Analytical Clusters. This definition should be done so that it creates criteria for establishing a formal professional body. Expertise in the cluster variables would then be required of current and prospective trainers. Accountability will thus be easy, and the long sought recognition would be enhanced.

However, there seem to be some regional differences with regard to the educational level of trainers, when compared to the national ASTD. There also seem to be some difference in the trainers' years of experience. The similarity among the trainers who
responded to the national survey and those who responded to the present research study (which is regional in nature) can only be seen when one examines the sector that employs the majority of trainers, and, the percentage of time the trainers devoted to training.

These regional differences might also explain the difference between the competencies clusters as well as the number of competencies clustered on the factors. The existence of these regional differences makes it essential for the national ASTD to conduct more regional studies before making definite policy statements on the competencies required of trainers.

Since educational level affects application of the competencies for effective training, trainers should be made to be involved in Continuing Education Units (CEU) on part-time basis. This will help keep them current with trends in the profession. ASTD seminars should be more education oriented so as to offer credits to participants who may wish to use such credits as a stepping stone towards their pursuit of advanced degrees.

Trainers can come from any educational background. This means that the practice of hiring trainers from
any educational background is supported by the results of this study. Since no particular educational background can claim sole ownership of valuing the importance of the competencies, or even to doing effective training because of their acquisition of the competencies, On-the-Job Training (OJT) can be used to train trainers to do effective and quality training. However, there are also questions as to its effectiveness and efficiency.

Different types of training need different competencies. So, the practice of mixing managerial and clerical employees for a training session, for example, should be avoided. Also, the practice of trying to train technical staff to be experts in human relations techniques should be done with a high degree of caution. This is because technical staff spend most of their work time with machines and equipment, and not much time with people. It will therefore be unproductive to concentrate on teaching technical staff uncessary human relations skills. Trainers should be familiar with Adult Education theories to be able to use developed models to add spice to the training they do,
in order to maintain quality through the use of appropriate teaching and learning styles.

ASTD should emphasize the competencies listed as important and needed by trainers, when conducting seminars and workshops for trainers. These competencies include: presentation skills, computer competency, writing skills, group process skills, cost-benefit analysis, adult learning understanding, and training and development techniques understanding.

ASTD, through its membership, should encourage business organizations that do not have any effectiveness measurement criteria to work on developing some. These measurement criteria will be the litmus test for the quality of the job they are doing in the organization. This will also help top management understand the role of trainers and be able to appreciate them more when evaluating and promoting business and industry’s top executive personnel.

For further research, it is suggested that a study be done, pairing the trainers with the employees being trained to see if the training they received helped improve their performance and productivity. It is also suggested that a study be done to find out the reason
why most trainers have academic background in education and to see if this is a way for educators to abandon the low-paying teaching profession. A further study might also look into the reason why managerial cluster competencies affect the type of training done in business and industry, and examine whether those types of training are more effective than the rest of them. Last but not the least, further research is suggested for any one interested in exploring the reasons behind the results of this particular study. A probable hint would be for the researcher to do a comparative analyses of the hypotheses studied here, with trainers and supervisors or managers as two distinct groups.
I want to use this opportunity to express my appreciations to all those who in any way helped me through this program. To the Department of Residence, thanks for giving me the opportunity to serve as an Area Advisor. This opportunity made it financially possible for me to undertake the program. Thanks to Dr. Dick Deems, President of the Iowa Chapter of ASTD, who saw the need for the Chapter as well as his consultancy firm to help defray the cost of this research study, and whose encouragement helped the survey participants to respond in a timely manner.

To Dr. Irene Beavers, and the late Dr. Carol Kay, thanks for steering me into this direction of study, and for all the encouragement and advice. To my program of study committee members, Professors John P. Wilson (major professor), William Wolansky, James McCormick, Donald Goering, and Mack Shelley, many thanks for all your patience and direction.

To my brother Dr. Martinianus C. Igbokwe, my mother Mrs. Roseleen Igbokwe, and my sisters Daa Terry, Dam Justi, Dam Kaa, Euna, Monique, and Julieth, thanks for
the support and for the encouragement especially after the death of our beloved father Chief Boniface N. Igbokwe and our beloved sister Mrs. Anthonia U. Kekeh, to both of whom I have dedicated this work. Last but not the least, to my wife Veronica and children Chika and Ngozi, thank you for being supportive and patient with me during the entire program.
## APPENDIX

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<th>Section</th>
<th>Page</th>
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<td>Box plot for Application Factor 1</td>
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<td>Stem and Leaf plot for Application Factor 2</td>
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<td>Rank of competencies on the Importance scale</td>
<td>189</td>
</tr>
<tr>
<td>Rank of needed competencies by trainers</td>
<td>190</td>
</tr>
</tbody>
</table>
TOTAL SYSTEMS MODEL
Training route to experienced worker standards
in the job
(adopted from Renton, as reproduced in Davies 1973)
The Boyd and Apps Model
(adopted from Boyd and Apps, 1984)
To: Iowa Chapter ASTD Members,  
From: Jude E. Igboke  
Re: Research Project

March 1, 1989

You have been randomly selected to participate in a research project focusing on Training Competencies and training Effectiveness.

There are four parts to the enclosed survey:
- Part 1 focuses on the 31 Competencies Identified by national ASTD in their Models For Excellence, and asks you to identify your perceived level of importance, and the use of the competencies in the training you do;
- Part 2 asks you to provide information on your specific work setting, as well as other demographic information;
- Part 3 focuses on the purpose of training in your company, and asks you to identify your perceptions of the purposes and effects of training in your company;
- Part 4 focuses on the effectiveness of training and asks you to respond to several items relating to your perceptions of measuring effectiveness;

This research has been approved by the Board of Directors of the Iowa Chapter ASTD and the Professional Studies Department, College of Education, Iowa State University.

You will note a code number on the survey, which will be used to record the percentage of returns. Please be assured that no one other than the researcher will be able to identify your name with your response, and there will be no connection between the individual response and the conclusions and summary of the research.

Please complete the survey and return it in the enclosed stamped and addressed envelope within five days. Your help is greatly appreciated. Results of the research study will be printed in a future edition of Iowa Chapter ASTD’s newsletter.

Sincerely,

Jude E. Igboke  
Researcher

Prof. John P. Wilson  
Chair Professor

Dr. Dick Deems  
President, Iowa ASTD
Dear ASTD Member,

Recently, I sent a questionnaire to you, asking for your help in completing the survey. Since the research study has a dual purpose of contributing to training in business and industry as well as to meet requirements for my graduation, I sincerely need your input.

I have noticed that you have either forgotten to return the questionnaire or you are currently busy with job related assignments.

I am appealing that you help me conclude the research by returning the completed questionnaire by April 20, 1989. If you have misplaced the original questionnaire, I will be glad to send another one to you.

Once again, thank you for your support.

Sincerely,

Julie E. Igboke
Researcher
Research Questionnaire

Part 1: Competencies of Trainers.
Please indicate your perceptions about each of the following competencies that you have as a trainer. In the first column by the left, please circle the number which represents your perception of the importance of this competency to you as a trainer. In the second column by the right, please circle the number which represents the frequency with which you apply this competency. Use the following response categories.

<table>
<thead>
<tr>
<th>competency</th>
<th>importance</th>
<th>application</th>
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</thead>
<tbody>
<tr>
<td>ADULT LEARNING UNDERSTANDING: (Knowing &amp; understanding how adults learn)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
<tr>
<td>AUDIO/VISUAL SKILL: (Adopting audio/visual hardware and software to appropriate situations)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
<tr>
<td>CAREER DEVELOPMENT KNOWLEDGE: (Understanding the personal and organizational issues &amp; practices relevant to individual careers)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
<tr>
<td>COMPETENCY IDENTIFICATION SKILL: (Identifying the knowledge and skill requirements of jobs, tasks, roles)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
<tr>
<td>COMPUTER COMPETENCY: (Familiarity with and use of computers)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
<tr>
<td>COST-BENEFIT ANALYSIS SKILL: (Assessing alternatives in terms of their financial psychological, and strategic advantages and disadvantages)</td>
<td>5 4 3 2 1</td>
<td>3 2 1</td>
</tr>
</tbody>
</table>
COUNSELING SKILL: (Helping individuals recognize & understand personal needs, values, problems, alternatives & goals)

DATA REDUCTION SKILL: (Summarizing and drawing conclusions from data)

DELEGATION SKILL: (Assigning task responsibility & authority to others)

FACILITIES SKILL: (Managing logistics in an efficient and cost effective manner)

FEEDBACK SKILL: (Communicating relevant information such that they are understood)

FUTURING SKILL: (Projecting trends and visualizing possible & probable futures and their implications)

GROUP PROCESS SKILL: (Influencing groups to both accomplish tasks & fulfill the needs of their members)

INDUSTRY UNDERSTANDING: (Knowing the key concepts & variables that define an industry [e.g., critical issues, economic vulnerabilities, measurements, distribution channels, inputs, outputs, information sources])

INTELLECTUAL VERSATILITY: (Familiarity with varieties of ideas and practices and their logic, without undue influence from personal biases)

LIBRARY SKILLS: (Knowing how to use library resources)

MODEL BUILDING SKILL: (Developing theoretical frameworks which describe complex ideas in understandable, usable ways)

NEGOTIATING SKILL: (Securing win-win agreements while successfully representing a special interest in a decision situation).
OBJECTIVES PREPARATION SKILL: (Preparing clear statements which describe desired outputs) ........................................ 3 2 1

ORGANIZATION BEHAVIOR UNDERSTANDING: (Knowing how organizations function and using this larger perspective as a framework for understanding and influencing events and change) ......................... 3 2 1

ORGANIZATION UNDERSTANDING: (Knowing the strategy, structure, power networks, financial position, systems of a specific organization) ........................................ 3 2 1

PERFORMANCE OBSERVATION SKILLS: (Tracking & describing behaviors & their effects) ........................................ 3 2 1

PERSONNEL/HR FIELD UNDERSTANDING: (Understanding issues and practices in other HR areas [e.g., organization development, organization job design, human resource planning, selection and staffing, personnel research and information systems, compensation and benefits, employee assistance, union/labor relations]) ........................................ 3 2 1

PRESENTATION SKILLS: (Verbally presenting information such that the intended purpose is achieved) ........................................ 3 2 1

QUESTIONING SKILL: (Gathering information from individuals and groups through the use of interviews, questionnaires and other probing methods) ........................................ 3 2 1

RECORDS MANAGEMENT SKILL: (Storing data in easily retrievable form) ........................................ 3 2 1

RELATIONSHIP VERSATILITY: (Adjusting behavior in order to establish relationships across a broad range of people & groups) ........................................ 3 2 1

RESEARCH SKILLS: (Knowledge of systematic techniques for a formal inquiry) ........................................ 3 2 1
c. Please rank 5 of the above competencies according to their order of importance to you. (1=greatest importance; 5=least importance)

1. 
2. 
3. 
4. 
5. 

d. Please indicate other competencies you feel that trainers need to develop more.

1. 
2. 
3. 
4. 
5. 

Part 2: Demographic Information.
Please in each of the following items, check one of the responses as they apply to you.

a. Gender
   1. Male
   2. Female

b. Age: __________

c. Years of experience as a Trainer: __________

d. What is the highest academic degree awarded to you?
   1. Less than BS/BA
   2. BS/BA
   3. MS/MA
   4. PhD
   5. Other (please specify) __________

e. From which of these educational disciplines did you get your background in training supervision? (check one only please)
   1. Business Administration
   2. Education
   3. Engineering
   4. Science and Humanities
   5. Other (please specify) __________

f. What sector of business/industry are you associated with?
   1. Manufacturing
   2. Retail
   3. Service
   4. Other (please specify) __________

g. How would you characterize your organization’s top management’s attitude towards training in general?
   1. Very High
   2. High
   3. Indifferent
   4. Low
   5. Very Low
h. Based on your experience as a trainer, do you think that your educational discipline prepared you for being an effective Trainer?

1. ____ Well Prepared
2. ____ Prepared
3. ____ Not Sure
4. ____ Illprepared
5. ____ Very Illprepared

i. Where did you primarily get your background in training?

1. ____ Academic
2. ____ On the Job
3. ____ Other (please specify)

j. What percentage of your time do you devote to the following types of training? (total should equal 100%)

1. ____ Managerial
2. ____ Technical
3. ____ Clerical
4. ____ Line and Staff
5. ____ Other (Please specify)

k. Which among the following best describes how you consider a trainer's role? Please check only one response.

1. ____ Marketer/Transfer Agent/Instructor/Group Facilitator
2. ____ Evaluator/Needs Analyst/Task Analyst
3. ____ Program Designer/Instructional Writer/Theorician
4. ____ Manager/Strategist
5. ____ Other (Please specify)

l. What percentage of work time do you devote to training in general? %

m. How would you classify your involvement as a trainer?

1. ____ Corporate/Company Employee
2. ____ Entrepreneurial/Self Employed (If you checked this, skip all of Part 3, and go to Part 4).

n. If you are a Corporate employee, how many people work for your organization?
Part 3: Purpose and Effectiveness of Training.

Please circle on the first column by the left, the purpose of training in relation to your organization. In the second column by your right, indicate your perception of the effects of the training you provide on these purposes by circling the appropriate response. Use the following response categories.

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Effects</th>
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</thead>
<tbody>
<tr>
<td>Increased productivity</td>
<td>Highly Effective</td>
</tr>
<tr>
<td>Meeting the skill needs of your organization</td>
<td>Highly Effective</td>
</tr>
<tr>
<td>Meeting the objectives of the training program</td>
<td>Highly Effective</td>
</tr>
<tr>
<td>Meeting the objectives of the organization</td>
<td>Highly Effective</td>
</tr>
<tr>
<td>Incentive and reward to employees</td>
<td>Highly Effective</td>
</tr>
</tbody>
</table>

Part 4: Standard Measures of Effectiveness

Please check only one response in each of the items below.

a. What makes trainers effective trainers?
   1. Participants learned something from training
   2. Contributing to organizational payoff
   3. Having a satisfied work force

b. To what extent is the training program(s) that you deliver effective?
   1. Highly Ineffective
   2. Ineffective
   3. Cannot Decide
   4. Effective
   5. Highly Effective
c. What role should trainers perform?

1. Marketer/Transfer Agent/Instructor/Group Facilitator
2. Evaluator/Needs Analyst/Task Analyst
3. Program Designer/Instructional Writer/Theoretician
4. Manager/Strategist
5. Other (Please specify)


d. What criteria do you use to measure the effectiveness of training? (e.g., increased productivity, etc.)

1. 
2. 
3. 


e. What criteria does your organization use to measure the effectiveness of training?

1. 
2. 
3. 

f. Please write additional comments you might have about the competencies and training in general below.

Thank you for your time and effort in completing this questionnaire.
Scree Plot of Eigenvalues — Importance
Stem and Leaf plot for Importance Factor

```
STEM LEAF       #
50 000000       6
48 333333       7
46 777777777777777 15
44 00000000000000000000000 19
42 333333333333333333333333 18
40 00000000077777777777777 19
38 33333333333            9
36 7777               4
34 0                 1
32 333                3
30 7777               4
28
26
24
22 3

-----|-----|-----|-----|--
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Multiply Stem Leaf by 10**-01

**MOMENTS**

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**SUM**

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</table>

| 452.667 |
| SUM |

| 0.234631 |
| VARIANCE |

| 1.7514 |
| KURTOSIS |

| 24.6363 |
| CSS |

| 0.0470479 |
| STD MEAN |

| 0.0001 |
| PROB> | T |

| 0.0001 |
| PROB> | S |

| <.01 |
| PROB>0 |
Box plot for Importance Factor

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Normal Probability plot for Importance Factor

EXTREMES

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Stem and Leaf plot for Application Factor 1

STEM LEAF #
30 0000 4
29
28 0000000000 10
27
26 0000000000000000000 17
25 0 1
24 0000000000 11
23
22 0000000000000000000000000000 26
21
20 00000000000000000 16
19
18 00000000 8
17
16 00000 6
15
14 000 3
13
12 00 2
11
10 00 2
9

----|----|----|----|----|
Multiply Stem Leaf by 10**-01

MOMENTS

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Box plot for Application Factor 1

<table>
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<th>QUANTILES (DEF=4)</th>
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<tr>
<td>75% Q3</td>
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<td>Q3-Q1</td>
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<tr>
<td>MODE</td>
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</table>
Normal Probability plot for Application Factor 1

EXTREMES

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<td>1.4</td>
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Stem and Leaf plot for Application Factor 2

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<thead>
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<tr>
<td>25 00000000000000000000000</td>
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<tr>
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<td>11</td>
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<td>10 00</td>
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Multiply Stem Leaf by 10**-01

**MOMENTS**

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Box plot for Application Factor 2

QUANTILES (DEF=4)

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<th>100% MAX</th>
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<th>99%</th>
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<tr>
<td>25% Q1</td>
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<td>10%</td>
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<td>0% MIN</td>
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</table>

<table>
<thead>
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<th>MODE</th>
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Normal Probability plot for Application Factor 2

EXTREMES

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<tr>
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<td>1.5</td>
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Role of trainers in the organization

<table>
<thead>
<tr>
<th>Role</th>
<th>Number</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Marketer/Transfer Agent/Instructor/Group Facilitator</td>
<td>63</td>
<td>59.4</td>
</tr>
<tr>
<td>Evaluator/Needs Analyst/Task Analyst</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Program Designer/Instructional Writer/Theoretician</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Manager/Strategist</td>
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<td>14.2</td>
</tr>
<tr>
<td>Combination of 1 and 2</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>Mixed Combination (Potpourri)</td>
<td>8</td>
<td>7.5</td>
</tr>
<tr>
<td>Motivator</td>
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<td>Backup</td>
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<tr>
<td>Total</td>
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Role trainers should perform in the organization

<table>
<thead>
<tr>
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<td>Marketer/Transfer Agent/Instructor/Group Facilitator</td>
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<tr>
<td>Evaluator/Needs Analyst/Task Analyst</td>
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<td>6.6</td>
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<tr>
<td>Program Designer/Instructional Writer/Theoretician</td>
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<td>6.6</td>
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<tr>
<td>Manager/Strategist</td>
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<td>6.6</td>
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<tr>
<td>Combination of 1 and 2</td>
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<tr>
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Top management’s attitude towards training

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<tr>
<td>High</td>
<td>63</td>
<td>59.4</td>
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<tr>
<td>Indifferent</td>
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<td>12.3</td>
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<tr>
<td>Low</td>
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<td>0.9</td>
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<tr>
<td>Very Low</td>
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<td>0.9</td>
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<tr>
<td><strong>Total</strong></td>
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<td><strong>100.0</strong></td>
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### Rank of competencies on the importance scale

<table>
<thead>
<tr>
<th>Rank</th>
<th>Competency</th>
<th>Number</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Presentation Skills</td>
<td>68</td>
<td>64.2</td>
</tr>
<tr>
<td>2</td>
<td>Adult Learning Understanding</td>
<td>63</td>
<td>59.4</td>
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<tr>
<td>3</td>
<td>Training and Development Techniques Understanding</td>
<td>40</td>
<td>38.0</td>
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<tr>
<td>4</td>
<td>Writing Skills</td>
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<tr>
<td>5</td>
<td>Group Process Skills</td>
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<td>32.1</td>
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</tbody>
</table>
### Rank of needed competencies by trainers

<table>
<thead>
<tr>
<th>Rank</th>
<th>Competency</th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Presentation Skills</td>
<td>30</td>
<td>28.3</td>
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<tr>
<td>2</td>
<td>Computer Competency</td>
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<td>Group Process Skills</td>
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<td>5</td>
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<td>20.8</td>
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<tr>
<td>6</td>
<td>Adult Learning Understanding</td>
<td>22</td>
<td>20.8</td>
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</tbody>
</table>
ABBREVIATIONS

AGE = Age
APP = Application of Competencies (Ranges from 1-31)
AT&T = American Telephone and Telegraph Company
ASTD = American Society for Training and Development
CBT = Computer Based Training
EDBACK = Educational Background
EDPREP = Educational Preparation
EFFECT = Effects of Training (Ranges from 1-6)
HAD = Highest Academic degree
IBM = International Business Machines
INVOKE = Involvement as a Trainer
IMP = Importance of Competencies (Ranges from 1-31)
MATT = Managements Attitude towards Training
NCOMP = Needed Competencies
OCRIT = Organization's Criteria for Effectiveness (Ranges from 1-3)
OEBACK = Other Educational Background
OJT = On the Job Training
OHAD = Other Highest Academic degree
OPBKGRD = Other Primary Background in Training
OPROLE = Other Roles Trainers should perform
REFERENCES


Thomas, W. G. "How to be successful as a consultant to Industry." Instructional Innovator, 26 (January 1981):22-23.


